Periodicals
STACK

AMERICAN BEE JOURNAL

PUBLIC LIBRARY
5 1928
DETROIT

JUNE, 1928

BEE DISEASES AND THEIR ERADICATION —M. G. DADANT

UNCLE SAM'S BEEMEN —F. C. PELLETT

CALCIUM CYANIDE FOR THE BEEKEEPER —ROGER C. SMITH

MAY DISEASE DR. L. LARDINOIS

FREE

ULTRA VIOLET QUEENS

FREE

Have you been reading the accounts of our treatment of Ultra Violet Rays to queen bees in the Beekeepers' Item? These treatments have been conducted for the past fourteen months. An eight-page booklet will be mailed to you free describing this upon request. The queens show an average increase in egg-laying of 30 per cent and the offspring extremely gentle.

Here is an opportunity to receive an Ultra Violet treated queen free. All those purchasing $25.00 or more of bee supplies from us at our low catalog prices will receive one of these treated queens without cost. Write for our 1928 catalog if you do not have one handy.

The following prices are for Ultra Violet treated Italian queens, which we guarantee are worth the extra cost above that of the untreated queens, which is 50c each, and if, after you have used these queens this season and do not agree with us that they are worth this extra cost and a great deal more, we will refund this treatment charge to you without question.

These queens in the hands of other beekeepers show that 81 per cent of the queens increased egg-laying from 10 to 40 per cent and that the offspring were extremely gentle. The balance, 19 per cent, showed either increased egg-laying or extreme gentleness. Prepare your colonies with Ultra Violet treated queens this year.

One Queen	$ 1.75
Six Queens	9.60
Twelve Queens	18.00

These can be furnished in either Golden Italians or Three-banded Italians, as you choose. Two-day delivery guaranteed.

THE FRED W. MUTH CO. CINCINNATI, OHIO

SUPERIOR ITALIAN QUEENS

We can fill your order promptly for Italian queens, as we have 6,000 nuclei in operation. We guarantee these to be as good as money can buy at any price.

Italian Queens

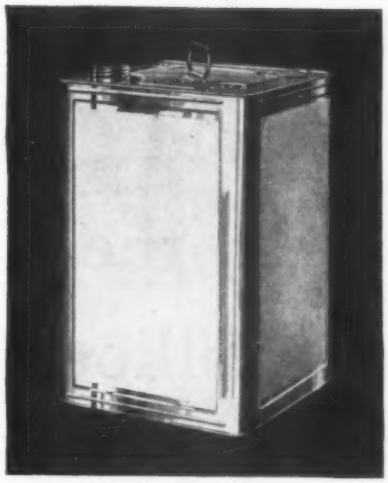
Any Number, 60c each

We can still supply you package bees as follows:

Two-pound packages bees with queen	$3.25
Three-pound packages bees with queen	4.25

THE STOVER APIARIES, Tibbee Station, Miss.

Telegraph Office and Shipping Point, Mayhew, Miss.



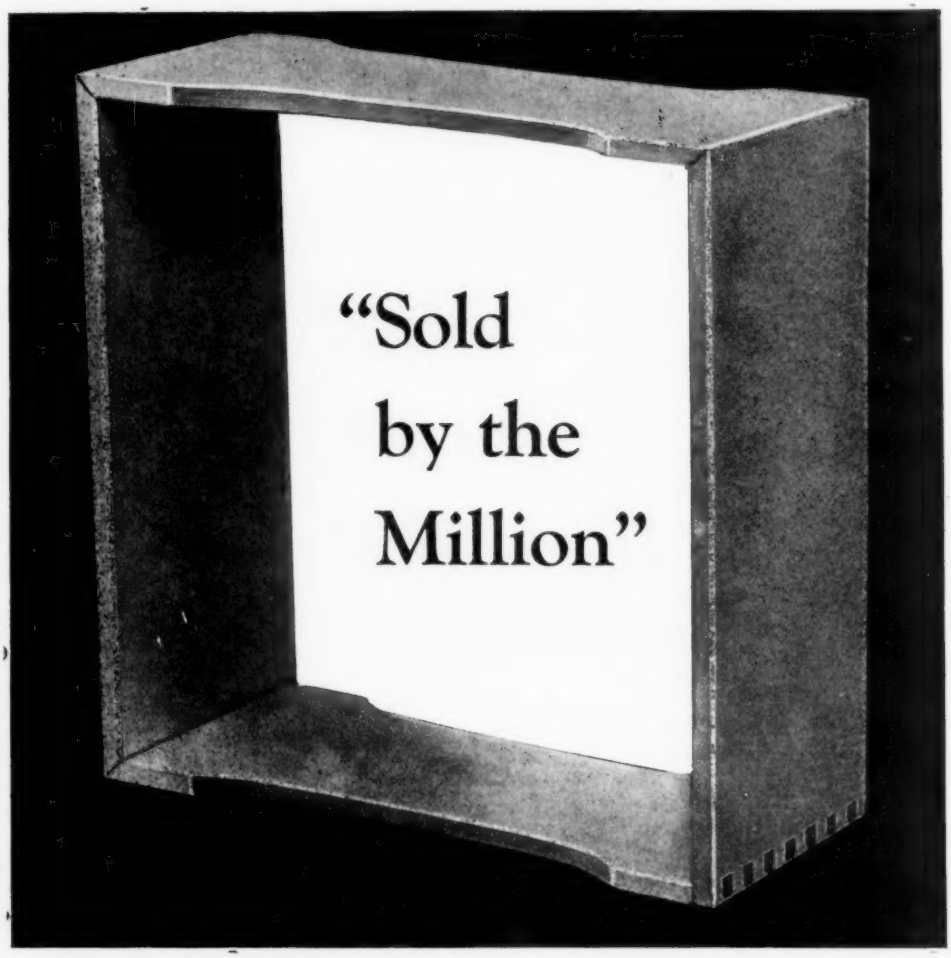
Today's Big Value in Honey Containers

THE Wheeling five-gallon or 60 lb. Square Can is one of the most popular honey containers on the market today. Top and bottom are double seamed and soldered, making a leak-proof container of exceptional strength. Furnished with 1¾ in., 2 in. and 2¾ in. screw cap with cork or paraffined pulp-board liners in either 107 lb. or 135 lb. tinplate.

We are also in position to furnish all sizes of friction top honey and syrup cans. Let us quote prices on your requirements.

Wheeling Can Company

Wheeling, West Virginia



They Are the Most Satisfactory. *They Sell Your Comb Honey Best*

BUY OF YOUR NEAREST ROOT DEALER

Root QUALITY BEE SUPPLIES

The A. I. Root Company
Medina, Ohio

Root QUALITY BEE SUPPLIES

KNIGHT'S QUEENS

LINE-BRED, THREE-BANDED, LEATHER-COLORED, ITALIANS

Bred for gentleness and good honey gathering qualities for 22 years. They have proven to stand the far northern climate, coming out with strong colonies in the spring.

PRICES:

1 select (one grade) young laying queen	$1.00
5 select (one grade) young laying queens	4.00
10 or more, each	.75

All queens guaranteed pure mated and to give satisfaction. Sent in large, six-hole cages unless smaller size specified. No charge for clipping. No disease. Health certificate. Immediate shipment. Safe arrival and satisfaction guaranteed.

JASPER KNIGHT, Hayneville, Alabama

400 QUEENS 400

EVERY DAY and BEES TOO

We are mailing out several hundred queens daily now, and shipping many package bees. We are now ready to fill your order; just send it right along, giving shipping dates.

100% satisfaction or money back

Prices

Two-pound package with queens

1	10	25	50	100
$4.00	$37.50	$90.00	$175.00	$335.00

Three-pound package with queens

1	10	25	50	100
$5.00	$47.50	$115.00	$225.00	$435.00

Select untested queens

1	10	25	50	100
$1.00	$9.00	$20.00	$ 37.50	$ 75.00

Tested queens

1	10	25
$1.50	$14.00	$30.00

The Citronelle Apiaries

Citronelle, Alabama

Root Queens

Famous Northern-bred Basswood Stock, shipped in our new mailing and introducing cages, which help to insure safe introduction

Prices Before June 15

	1	10	25
Untested	$1.50 ea.	$1.25 ea	$1.00 ea.
Tested	2.50 ea.	2.25 ea	

Prices After June 15

	1	10	50
Untested	$1.10 ea.	$1.00 ea.	$ .85 ea.
Tested	2.25 ea.	2.00 ea.	1.85 ea.
Select tested	5.00 ea.		

When ordering, specify date on which you desire shipment and we shall do our best to serve you.

Combless Package Bees by Express

	1	10	25
Two-pound pkg.	$4.50 ea.	$4.00 ea.	$3.50 ea.

Note: Add price of queen wanted to package bees.

The A. I. Root Company

West Side Station **Medina, Ohio**

JUNE SPECIALS

AT ST. LOUIS

Five 10-frame Jumbo Hive Bodies, complete with Hoffman self-spacing frames (Quinby depth), tin rabbets and nails	$5.80
Five 10-frame Supers for 4x5 sections, including section holders, fence separators, springs, tins and nails	6.25
(These supers will hold 32 sections each and they can also be used with shallow extracting frames)	
4x5 Sections, Grade A, per thousand	9.50
Vertical Wire Frames, per hundred	5.50
Five 10-frame Hive Stands	1.75
Five 3-frame Nucleus Hives with frames	4.50
Hulen Frame Nailing Device	1.25
Five 8-frame Hive Bodies with standard Hoffman self-spacing frames, tin rabbets, and nails	4.50

St. Louis Apiary Supply Co.

308 Commercial Building

ST. LOUIS, MO.

Distributors Diamond Match Company Apiary Products

36 Years Ago

THRIFTY bees were pleasing some of America's best beekeepers. Today thousands of beekeepers throughout the American continents continue to buy THRIFTY bees because they always please.

Thirty-six years of careful breeding makes it possible for us to guarantee our thrifty bees to please you.

Your June orders for queens and package bees will receive prompt and careful attention. Safe arrival is guaranteed in the U. S., Canada and Cuba.

UNTESTED QUEENS

One to eleven, 80c each; twelve to ninety-nine, 70c each; one hundred up, 60c each

After June 15 untested queens will be 60c each, any quantity. Select untested, 15c higher.

Let us quote you our attractive prices on package bees

Ask for booklet "Reasons Why".

W. J. FOREHAND & SONS

Fort Deposit, Alabama

Remember, THRIFTY bees are guaranteed to please

IN THIS ISSUE

JUNE, 1928

Bee Diseases and Their Treatment—M. G. Dadant ... 281
Editorials ... 284
Uncle Sam's Beemen—Frank C. Pellett ... 286
European Foulbrood in Oregon—H. E. Weisner ... 290
A Story of the Honey Meals—Thelma Rae ... 291
Strawberries—Betty B. ... 292
Moving Bees a Short Distance by the Newspaper Method—Domenic Barone ... 293
May Disease—Dr. L. Lardinois ... 294
Calcium Cyanide—Its Uses to the Beekeeper—Roger C. Smith ... 296
Taking Italian Bees to India—Alice B. Munro ... 297
The Big Brood Chamber in a Bad Season—Rev. B. Wright ... 298
The Editor's Answers ... 300
Spray Poisons and Bees—Philip Bishop ... 302
Meetings and Events ... 307
Crop and Market ... 311

Our Cover Page

This fine picture of a runaway swarm and its fair observer comes to us from Merry England, sent in by D. M. Cuthbertson. Just right for June. We take some pride in our covers and their subjects. If any well-wisher has equally good material it is welcome.

Send Us Your Inquiries

When You are in the Market for

Sections, Hives, Supers, Frames, Etc.

We are prepared to give you fair treatment and prompt service at all times

Write for our Catalog
It's Free

August Lotz Company
Boyd, Wisconsin

Golden Queens

Beautiful, gentle and good honey gatherers

Select (one grade) young laying queen, $1.00 each; five for $4.00; ten or more, 75c each

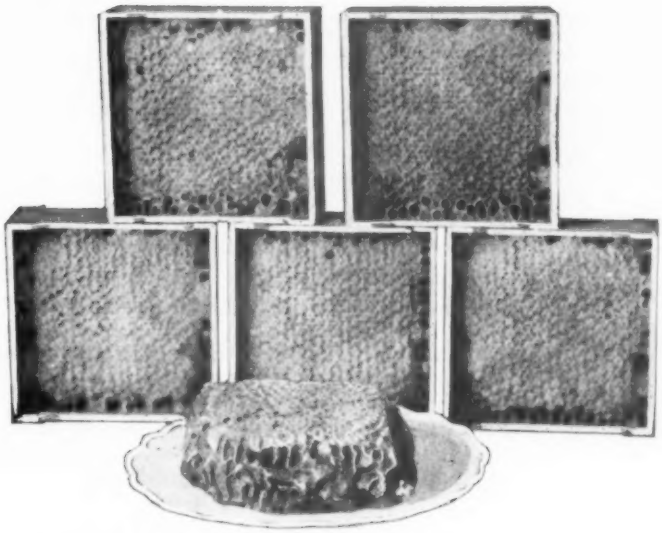
We have Major's safe introducing cage, which is also self-introducing, in which we guarantee safe introduction. The price is 50c additional in this cage. All queens mailed in large six-hole cages unless smaller size preferred.

No Disease. Health Certificate

Safe arrival and satisfaction guaranteed

The Golden Apiaries
LETOHATCHIE, ALABAMA
H. N. Major, Mgr.

Appearance — Sells Comb Honey



Dadant's Surplus Foundation — Choicest of Pure Beeswax.

Milled by experts who have studied its making for over fifty years.

Makes even, well-filled sections which grade high and sell quickly.

The big Point in a Good Section of Comb Honey Is Its Appearance.

Appearance will sell comb honey as fast as it is made but the honey must look good enough to eat.

And the heart of it is foundation! The fulness of the section, the evenness of the comb, the biting quality, that delicate center taste is in the foundation.

Dadant's Surplus Foundation — Becomes Part of the Honey.

A delightfully edible part. Each sheet so dainty and clear.

So fragrant. A fit base on which to build the hive's best product.

Get Fancy Grades with Dadant's Surplus

DADANT & SONS

Hamilton, Illinois

Makers of Dadant's Famous Foundations

Wired — Plain — Surplus

You are within the Fourth Postal Zone of Lewis anywhere East of the Rocky Mountains

Honey Containers

Tin and Glass

In offering the lowest prices we have been able to make in years on glass and tin honey containers, we are offering the best quality. Also, you have a wider choice of sizes and assurance that we will do everything in our power to keep stock at our five warehouses ready for shipment on your orders.

Pails 5 lb. 12/c, 10 lb. 6/c and 5 gallon containers are in wood boxes, all other including all glass jars in heavy fibreboard cartons.

Very low prices on quantities CL or LCL. Write for free complete fall catalog.

TIN CONTAINERS—PLAIN—NOT LITHOGRAPHED

Cat. No.	Pack	Size	FOB Watertown	FOB Sioux City	FOB Lynchburg or Albany	FOB Texarkana
K 63—Cans	24/c	2½-lb.	$1.05	$1.10	$1.10	$1.20
K650—Cans	100/c	2½-lb.	3.50	3.60	3.65	3.80
K650—Pails	12/c	5-lb.	1.05	1.05	1.10	1.15
K 65—Pails	50/c	5-lb.	3.15	3.20	3.25	3.35
K 66—Pails	6/c	10-lb.	.80	.85	.85	.90
K 69—Pails	50/c	10-lb.	4.55	4.70	4.80	5.05
K624—Cans	1/c	5-gal.	.60	.65	.65	.70
10 Cans	1/c	5-gal.	5.70	6.00	6.00	6.50
K626—Cans	2/c	5-gal.	1.05	1.10	1.10	1.15
20 Cans	2/c	5-gal.	10.00	10.50	10.50	11.00

HART FLUTED GLASS JARS F. O. B. OUR WAREHOUSES

K648—3½-oz. glass jars, cartons of 24, weight 7 lbs., 24 for ..... $ .75
K632—½-lb. glass jars, cartons of 24, weight 12 lbs., 24 for ..... .85
K631—1-lb. glass jars, cartons of 24, weight 22 lbs., 24 for 1.10
K630—2-lb. glass jars, cartons of 12, weight 17 lbs., 12 for ..... .80

LITHOGRAPHED TIN CONTAINERS F. O. B. HAMILTON, OHIO

	4-color design	2-color design	Canco design
K646—2½-lb. Cans	100 @ $ 7.05	100 @ $ 6.25	100 @ $ 7.55
K645—5-lb Pails	100 @ 11.60	100 @ 10.20	100 @ 12.35
K644—10-lb. Pails	100 @ 15.60	100 @ 13.65	100 @ 16.45

HONESTLY MADE——HONESTLY SOLD——HONESTLY PRICED

LEWIS BEEWARE

STANDARD OF THE BEEKEEPING WORLD

G. B. LEWIS COMPANY

Established 1874

HOME OFFICE AND WORKS WATERTOWN, WISCONSIN

BRANCHES— ALBANY, NEW YORK LYNCHBURG, VIRGINIA TEXARKANA, ARKANSAS SIOUX CITY, IOWA

AMERICAN BEE JOURNAL

Vol. LXVIII—No. 6 Hamilton, Illinois, June, 1928 Monthly, $1.00 a Year

Bee Diseases and Their Eradication

By M. G. Dadant

THERE is a tendency to "hide under a bushel" any mention of bee diseases and of the work in their eradication. This is perhaps justifiable when considered from the angle of the possibility of giving wrong conceptions to the consuming public.

Yet, the dairymen have not suffered from strong publicity for tuberculosis eradication in cattle. On the contrary they have prospered because of it. Why should we, as beekeepers, with a product whose healthfulness has no direct relation to bee diseases fear from such publicity. All we need to do is to help get such publicity correctly stated.

Two years ago, in the September number for 1926 of the American Bee Journal, the writer gave a summary of the disease work. A comparison of conditions then and now will not be amiss, and should have an optimistic influence. The 1925 disease map and the one just drawn are interesting.

Idaho and Virginia are still the black spots on the map. Virginia still has no bee law, while Idaho has no money for enforcement of hers. In Virginia apparently conditions are not bad, but in Idaho they are. It is deplorable that a commercial honey state like Idaho should see her sister states go forward in the eradication program while she stands still or retrogrades. This is not the fault of the individual beekeeper in Idaho, but it does show a lack of sufficient cooperative spirit in getting behind this program. We believe firmly that where the beekeepers are united and make a real effort for help they will be recognized to the point where the state will give aid.

Nebraska is in little better shape than Idaho. A good law, but no funds, but with an effort on the part of state officials to make inspection. New Mexico and Oregon, both commercial honey states, still cling to the old county system of inspection without state supervision or aid. In some counties it works well; in others all the good work of years may be undone by an unfavorable action of county boards.

Iowa has progressed but little, although her record appears blacker than it really is, because inspection is being done on the area cleanup plan and in the worst sections first. The same is true of Ohio. Mr. Krebs gave a detailed report of the Michigan work in our April issue. We believe that 1928 will see a marked diminution in percentage of infection in that state.

So far, this article has appeared pessimistic, stressing the states where conditions are worst. There has, however, been material progress in others. Arkansas has changed her black spot to a white one by getting a bee law and by finding from first inspection that her conditions are not bad. Nevada, Wyoming, Kentucky, Maryland, New Jersey have reduced their infection to less than 2 per cent. Colorado has less than 3 per cent and should be in the white list next year. California has graduated from the county plan to one with state supervision. It should progress if her law is properly handled and there is proper cooperation between state and counties.

In Canada, Ontario is going after her disease situation "hammer and tongs" and should show better conditions in a year or two. Quebec has emerged as white area and the other provinces are holding their own, if not progressing.

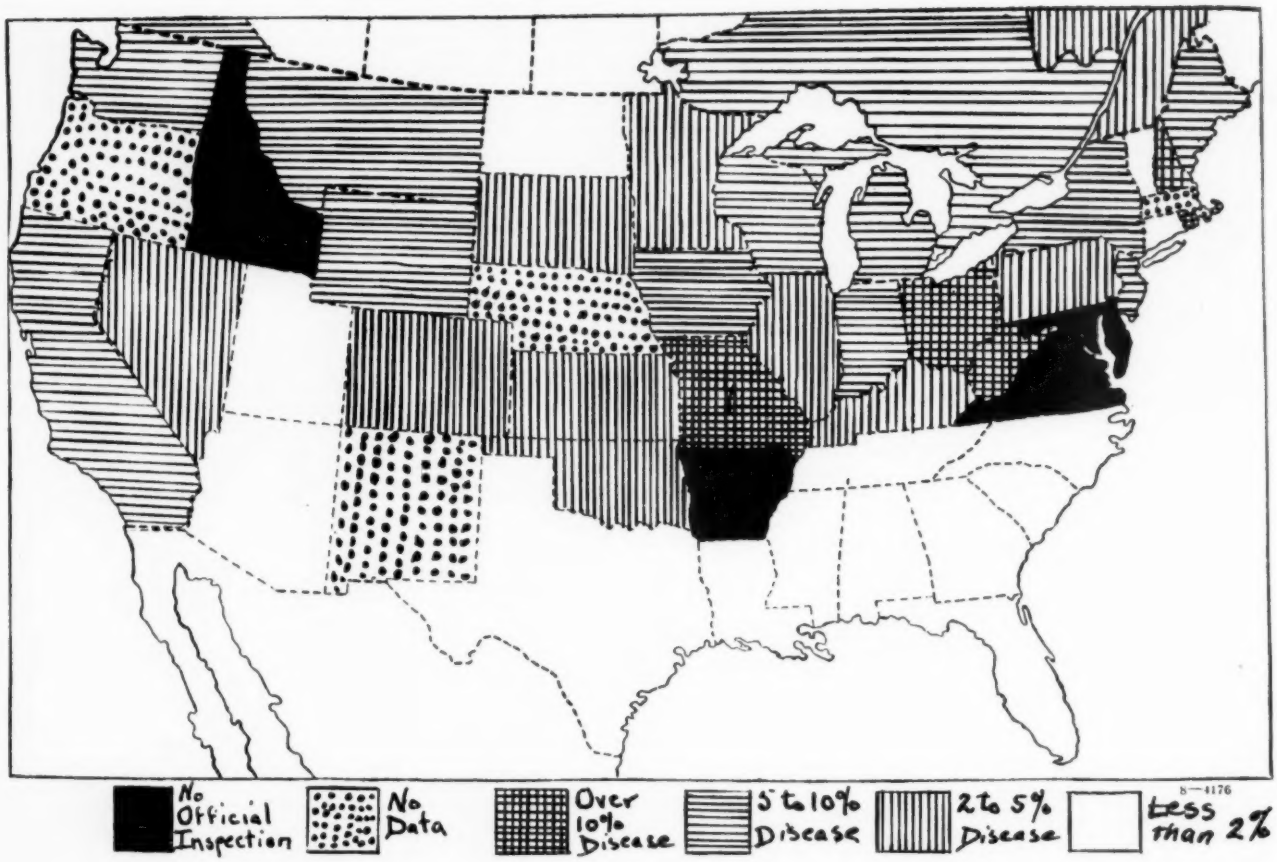
We cannot refrain from remarking that some states are really in better condition than they appear, while others need improvement. Wisconsin, for instance, has been pursuing the area cleanup plan and will, in the course of a few years, emerge with a very low percentage of infection. Minnesota and South Dakota, on the other hand, seem to have no definite plan and will probably drift along for a long time with little progress unless a revision of their system is made.

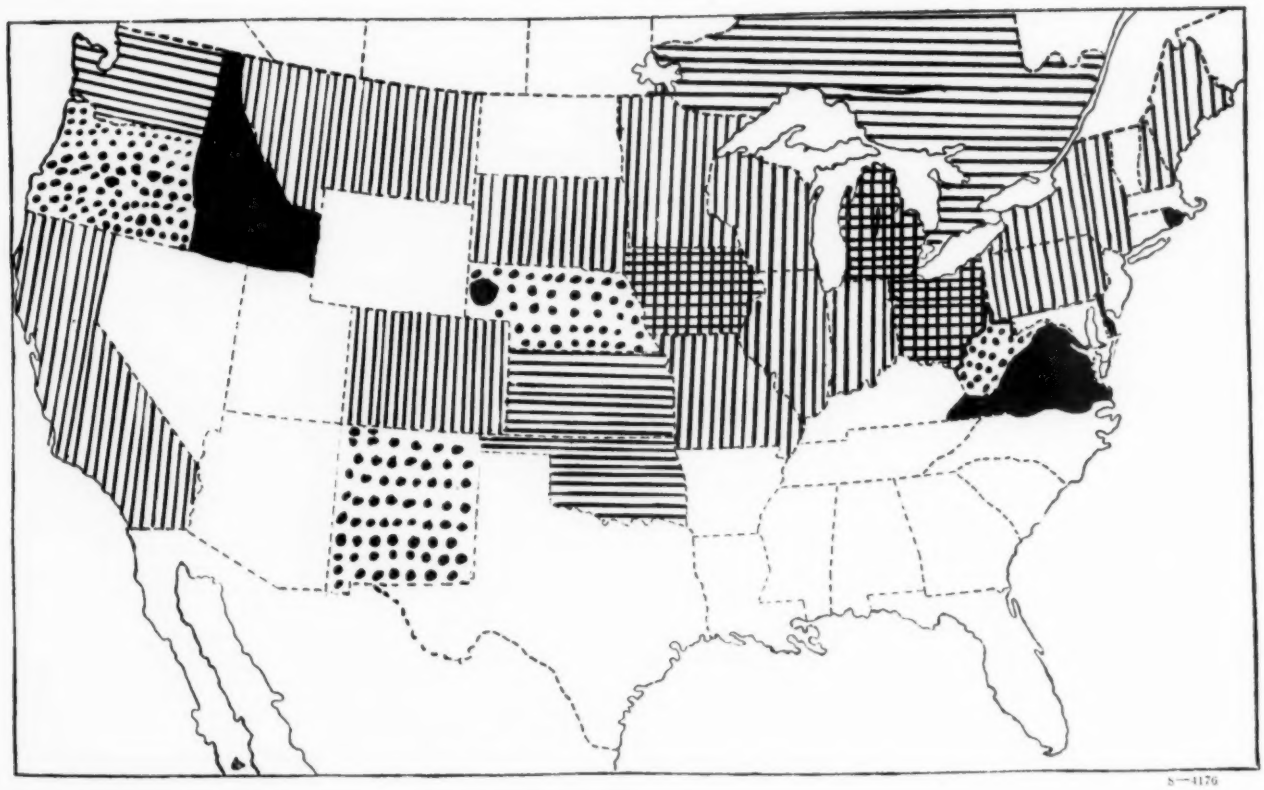
All in all, however, the progress for the country as a whole seems good. Three things are working favorably for bee disease diminution. The first is that the cleaning up of so many sources of disease is bound to reduce the danger of infection from outside sources, especially from entering shipments of honey. More rigid enforcement of certificates for incoming shipments of bees also has helped.

The second point is that education is getting in its work. Not only are beekeepers better read, but extension men are stressing the importance of disease eradication. Inspectors are, more and more, becoming extension men themselves.

Thirdly, inspectors as a rule are not trusting to the beekeeper to do his own cleanup work when notified he has disease, but insisting on doing the work themselves, on the spot, and at once. Most of them are insisting that the best means is not shaking, but ruthless burning of all possible sources of infection.

We will all agree that the beekeeper who waits when he is told by the inspector that he has disease is hardly likely to be punctual in making a thorough cleanup. Personally, I believe that a thorough cleanup will never be possible until the smaller and less careful beekeeper is prevented from continuing as a menace to others, by ridding him of his disease infection by burning. Shaking may have its place with the larger commercial beekeeper in a hospital yard. Formalin and other drugs probably are all right for sterilization of doubtful extracting combs, but the only real, sure enough cleanser is fire on the spot; and not delayed,





Comparison of disease situation in 1925 and 1927. Upper map 1925, lower map 1927

haphazard treatment when the beekeeper finds the time.

All in all, conditions are better. We yet have room for a lot of improvement, however, and several states could improve their conditions materially by concerted efforts to get behind the inspectors and help them, and, in some instances, push them, to a little more thorough system in their work.

Governors and state legislatures will listen if properly approached. Look what the Michigan men did.

Beekeeper Approves Honey Institute

The following letter, written by a beekeeper present at the organization of the Honey Institute, to the secretary, is of interest in connection with the announcement of the aims of the Institute:

Carmel, Ind., April 6.

Dear Mr. Parks:

It was the writer's privilege to hear the morning address of Dr. H. E. Barnard on March 31, at the Lincoln Hotel, Indianapolis. Not being able to attend the afternoon session, I wanted you to know that I heartily approve of his plan to acquaint the public with the merits of honey as a food.

The public is certainly ignorant concerning honey. I believe that fully 90 per cent of the people of this section are under the impression that honey is adulterated. If this impression alone could be corrected, it would be the means of increasing many times over the sale of honey.

I was certainly surprised at the large number of avenues of educating the public to the use of honey (without a national advertising campaign) as so clearly explained by Dr. Barnard. Beekeepers everywhere could well afford to contribute to such a campaign.

I shall be glad to have the plan of the American Honey Institute presented to our membership, and believe our organization will unanimously approve and support it.

Yours very truly,
Hamilton Co. Beekeepers' Ass'n,
Orin Jessup, Pres.

Cyprian Bees

By James C. Armstrong
Irish Bee Journal

In the spring of 1884 I was standing in our back garden watching my father as he made an examination of his stocks, which were housed in straw skeps and Stewarton boxes. Suddenly he made dive for the garden fence. It was three feet high and he was 58 years old, but it was taken in his stride and he was off across country in record time. When he returned a little later I asked what was the matter. It was those Cyprian bees! The year before he had got a queen of that race and that was his first dealing with her bees. They were very handsome bees, good workers, second to none for robbing, and the most erratic in temper that we ever had anything to do with. At times they were quite docile and easy to handle; the next day, perhaps, a diver's dress would have been necessary for protection. Nor did they confine their attention to humans, but dogs, cats, hens, ducks, pigs, and horses came in for what was going when the Cyprians were in the mood. They were very good workers, but their combs were not exactly beautiful and they often gathered a lot of honeydew, which spoiled the supers; but if you wanted quantity, irrespective of quality, they were the bees.

Robbing was one of their worst traits. When they started on a hive they did it thoroughly; there were no half measures with them. When their queens were crossed with black drones, their bees were worse to handle than the pure race; both were very hardy and prolific, but there was no pleasure in working with bees of their uncertain temper. After a few years we got quit of them, and to anyone proposing to get them I would say, "Don't."

Beekeeping In Nova Scotia

We have before us the report of the Department of Natural Resources of the Province of Nova Scotia for the year ending September 30, 1927.

Therein is a report of the Apiculture Division.

This division has a truck equipped with a complete line of beehives and supplies of all kinds for the special purpose of making visits to beekeepers and showing them the most modern and improved devices.

According to the report, 22 per cent of the bees of the Province are still kept in old-fashioned hives.

The report mentions great difficulty with poisoning on account of dusting the orchards with arsenical spray for insect control. In some places the poisoning has been so serious as to completely wipe out apiaries.

The amount of bee disease is negligible, there being only five colonies found in the Province last year.

Bibliography

"The Story of the Hive, a Bee Lover's Book," is on our desk. Yes, it is a bee lover's book, very readable and interesting. It is a book of 200 pages, by Canning Williams, published by A. & C. Black, London. It has but one engraving, a frontispiece in photogravure. But it is a work worthy of a place on the beekeeper's shelves.

Florida Queen Breeder Suffers Flood

I have survived the flood, which reached its height April 30. It forced me to move a small yard a mile and place them in an old, high, log camp. My nuclei yard I had to move in with my large yard, and my largest apiary I had to raise from two to two and a half feet.

The flood came to a stop when it was about fifteen inches over the regular stands. It took Thursday night, Friday, Saturday night until Sunday morning about ten till I had the last out of danger. You can imagine the water was not waiting when on one occasion it was lapping into the entrances as they were raised.

It has me balled up on queens. I had cells coming off to make another hundred nuclei Saturday. These all emerged in the cell builders. The high winds and cold have made mating bad and from now on the queens will have to mate over water-filled swamps, although if weather is fair, I think they will average fair mating.

J. L. Morgan.

Carr Says It Can Be Done

My Dear Editor:

I trust you will bear with me when I say that I believe the publication of the statement of Jay Smith, page 169, center column, that "American foulbrood is with us and is here to stay," is mighty bad psychology, also a poor prophecy.

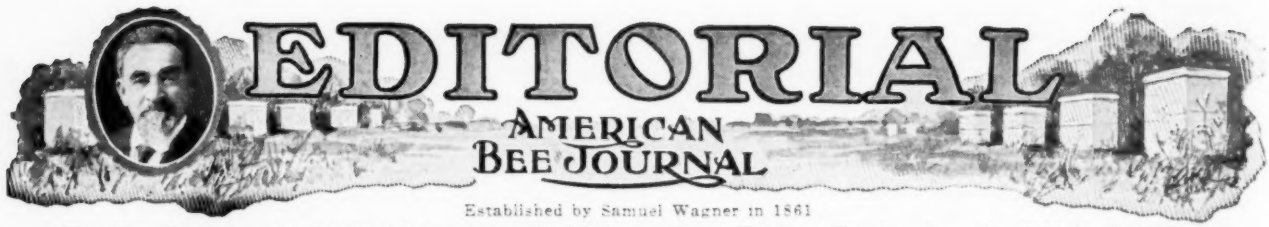
As I said in an article published in the American Bee Journal some months ago, just as soon as we make up our mind to get rid of American foulbrood, just that soon will we make progress to that end, but not before. The report of the work done in Michigan last year, page 177, is a case in point.

The "can't be done" attitude will do as much to retard the work as anything imaginable. The "it can be done" and "we will do it" attitude will get results.

E. G. Carr, New Jersey.

Fruit Growers Lose Through Death of Bees

A fruit grower of Canon City, Colorado, recently reported at a local meeting at that place that he had suffered serious losses through the death of bees in his neighborhood. He stated that he bought an orchard that produced 11,000 boxes of fruit only a few years ago, but that in later years the yield had dropped to about half that amount through poor pollination. He brought out the fact that the honeybees of the neighborhood had been killed through the application of spray poison.



Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Published monthly at Hamilton, Illinois. Copyright 1928 by C. P. Dadant

Entered as second-class matter at the Postoffice at Hamilton, Illinois.
C. P. Dadant, Editor; Frank C. Pellett, Associate Editor.
Maurice G. Dadant, Business Manager

SUBSCRIPTION RATES:

In the United States, Canada and Mexico, $1.00 per year; three years, $2.50. Other foreign countries, postage 25 cents extra per year. All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

Swarming

The time is soon at hand when swarming is prevalent. Many people who wish to prevent the issuing of swarms imagine that all that needs to be done is to give the bees plenty of breeding and super room. That is, of course, a sine-qua-non necessity, but it is by no means the only requirement. It is not to be wondered at that many people fail entirely to prevent swarming. On the other hand, some people imagine that if the bees are crowded for room they will swarm, and as some bee owners think that the main success of beekeeping resides in securing many swarms, they are disappointed when their bees refuse to swarm.

Colonies should not only be given plenty of room, both for brood and for surplus, but they should also be made to feel comfortable in their hive, by means of plenty of ventilation and shade, so that they need not cluster outside. A colony whose bees are clustered on the outside when there is honey in the fields is simply losing time. I remember a lady beekeeper who was very much worried because her bees were building comb and storing honey under the bottom board. The bees had probably hesitated a little before beginning this extraordinary procedure. The lady was highly elated when I showed her that the hive was entirely full and that there was need of more room for the bees.

Ventilation. We do not wait till the bees begin to cluster on the outside before giving them additional space to ventilate the hive. We raise the hive from its bottom, in front, an inch or more, whenever we notice that they are increasing their ventilating force. We must remember that the workers must force air up and through the combs, to the uttermost corners of the supers, and down and back again to the entrance, if they wish to be able to breathe and live in the atmosphere of the hive. For it is not only necessary to keep the temperature down where the combs will sustain their load of brood and honey, but it is also necessary for the thousands that live within the walls of the hive to have pure air to breathe. Yet in many cases beekeepers leisurely notice the hanging out of pints and quarts of bees without doing anything to help them. Raise the colony up from the bottom board until all the bees are able to stay inside.

This is the time when the greater spacing of 1½ inches of the combs from center to center is desirable. The ordinary spacing allowed by most manufacturers of hives is objectionable. Of course, an increase of one-eighth of an inch, from 1⅜ to 1½, in the spacing of the brood combs is very insignificant in appearance, yet when we multiply this amount by the length and the height of the combs we find that it increases the space for breathing and ventilating by over 150 cubic inches, in the brood chamber.

Shade is important. If your hives are in the sun in June and July, you may ascertain how hot they become by the simple test of laying a piece of empty comb on the cover. It will very soon melt down. Yet beeswax does not melt under 145 degrees. Thus you can ascertain how necessary for your hives to be well shaded, by either a natural or an artificial shade.

But other things are needed. If the queen of the hive is at all failing in her egg-laying—in fact if the bees conclude that it is well to rear another—they will raise queen-cells and a swarm will be sure to follow. It is only when they have young, vigorous queens that the bees are fully satisfied and do not attempt to replace them. That is why we often find queen-cells in populous colonies at the time of harvest.

Drones in excess are also a cause of swarming. The old-time beekeepers, and there are even some among the progressive beekeepers, believe that drones are needed to keep the brood warm. It is true that they produce considerable heat. But drones are only raised for the honey season, when the natural heat is already great. Their warmth simply serves to increase the bees' desire for swarming. Those big, noisy fellows stay in the warmest part of the hive all night and only take a flight during the warmest part of the day, when their goings and comings are a hindrance to the steady flight of the laden field workers. So it is quite important not to rear any more drones than are absolutely needed for the mating of the young queens, and we nearly always get plenty of them. Drones should be reared purposely in two or three of our best colonies, but we should carefully avoid rearing them in the colonies from which we expect honey and not swarms. In a natural condition, bees build from one-tenth to one-seventh of their combs of drone size, and this means a production of some 3,000 drones. Of course, at the present time, with the use of comb foundation, a much less number of drones are produced, yet many would be astonished, in examining their hives on the inside, to see how many more drone combs are in the brood chamber than are wanted there.

What of the Future?

One need only compare the business of beekeeping today with conditions of forty years ago to realize that great changes have taken place. Then, commercial honey producers were rare and the man with one hundred hives was considered an extensive beekeeper. Now honey production is becoming a specialty requiring a considerable investment of capital as well as all of one's time. In line with the trend of the times, large scale operation promises soon to be the rule.

Throughout the plains region of the West the expansion of the sweet clover areas is opening an immense expanse of bee pasture. In many locations it is not uncommon to find yards of from one to three hundred colonies, with the owner operating a string of such apiaries. The man with a thousand hives of bees is no longer an object of special notice, since there are many with that number or more.

The man with a good outfit in a good sweet clover location can produce honey at fair profit for a price below cost of production to the one in an ordinary location. Since sweet clover fits into the farming practice of the West better than any other legume, there is every reason to believe that this region will constantly increase its available bee pasture for many years. It is quite possible that the so-called sweet clover region will soon turn out more honey than the entire country did a few years ago. Just what effect this may have on the future markets no one can foretell. The fact that so many sell their crop by carloads will make possible organization and advertising which were out of the question for an army of small producers. It may well be that with increased production will come greater prosperity, as happened for the dairy industry. The side line dairyman and poultryman

have profited from the prosperity that came to their industries as a result of large scale production of specialists.

Furthermore, sweet clover is being planted in the region where farmers formerly depended upon red and alsike clover. So general is this practice that none can tell where the sweet clover region begins or ends, and it is quite possible that the average production of the older regions will likewise be greatly increased through the planting of this crop. F. C. P.

A Correction in Illinois Law

Professor Milum, of the State University, sends us a copy of the state law on bee diseases, as published in November last, which makes additions to the law. We find that it corrects the answer given on page 244 of May "Answers to Questions." It reads as follows:

"Section 2a. "No person shall transport a colony of bees or used bee equipment, except a live queen and her attendant bees in a cage without combs or brood, from one county of this state to another county of this state, without a certificate from the Department of Agriculture, stating that it has, within sixty days before the date of shipment, inspected the colony or equipment and found it to be free from foulbrood.

Section 2b. "No person shall transport a colony of bees or used bee equipment, except a live queen and her attendant bees in a cage without comb or brood, into this state from a state or country having an inspector of apiaries or other officer charged with similar duties, without a certificate stating that the officer has, within sixty days before the date of shipment, inspected the colony or equipment and found it to be free from foulbrood.

"No person shall transport a colony of bees or used bee equipment, except a live queen and her attendant bees in a cage without comb or brood, into this state from a state not having an inspector of apiaries or other officer charged with similar duties, unless the shipper or consignee has obtained from the Department of Agriculture, upon making a sufficient showing that the colony or equipment is free from foulbrood, a permit for the shipment into the state."

American Honey Institute Meets with Favor

That Secretary Barnard of the American Honey Institute, with headquarters at Indianapolis, is not wasting any time in making connections with parties who may be of help to that organization and the cause of beekeeping is witnessed by copies of letters received in this office.

Dr. Barnard's first activities were to establish connection with all Government agencies which might be interested in giving any aid they could to a worthy food product.

The result was a personal letter from W. M. Jardine, Secretary of Agriculture, at Washington. This department has always been noted for its wonderful help to all agricultural interests, and the clipping given below from Mr. Jardine's letter will be of interest to beekeepers in particular:

"Your new work in connection with the American Honey Institute established by the Bee Industries Association, as mentioned in your letter of April 3, will be followed with great interest. Your primary object naturally is to increase the sale of honey. You realize that the Department of Agriculture cannot push for sale any agricultural product, but you may rest assured that it stands ready to cooperate with your Institute, or any similar agency, in securing fundamental data covering any agricultural product which will aid in the production, legitimate use, or marketing of that product.

"It is hoped that beekeepers in this country will realize the benefit that such an agency as the American Honey Institute, if properly conducted, can render them in enlarging their potential honey market, and that they will support your efforts in their behalf."

Nor did Dr. Barnard forget to establish, at once, connections with food authorities, who are not so much interested in food products themselves as in the ultimate benefit or effect such products will have upon the people in human consumption. The result is a letter of reply by one of these food experts, who is already well known to the beekeeping fraternity, Dr. Harvey W. Wiley. Part of his letter is also herewith given:

"Dear Dr. Barnard:

"I am interested in your new industry, or perhaps I ought to say old industry revived, namely, the honey matter. Unfortunately, the amount of honey that is now produced in the United States, or that may or can be produced therein, is entirely insufficient to supply the wants of only a small percentage of our people. If we stress the honey matter too prominently, we may do injury not to the bees nor the beekeepers, or the bee merchants, but to those who prefer honey to other sweets.

"I am a great believer in honey both on account of its flavor and because I think it is far more wholesome than refined white sugar."

Needless to say that such activities on the part of Dr. Barnard cannot help but have their effect, and if multiplied a hundred-fold and accompanied by definite information of the food value of our product, honey, must ultimately affect the sale of such product.

We must not, however, at once "doze in the cradle of security," because these activities are only at present embryonic. On the contrary, all beekeepers should resolve to give every help possible to this agency. We are sure that any suggestions or information available on the part of individual beekeepers or instances of publicity for honey will be gladly received by Dr. H. E. Barnard, of the American Honey Institute, whose address is Indianapolis, Indiana.

Something Different

At a food show held in Baltimore, Maryland, the Fairy Gold Pure Food Company of that city advertised honey by having a local beekeeper, Mr. E. A. Andrews, Jr., sit in a wire cage, 6x9 feet, with several thousand bees. He passed out samples of Fairy Gold honey on crackers or bread, which they say "proved quite an advertising stunt in the promotion of local sales of honey."

The giving of samples probably creates more sales for a product than any other method of advertising, as it gives the consumer an opportunity of trying it without much effort. This, added to some unusual display, should do much toward putting honey before the public.

It is also well to choose an attractive and appropriate name for your product and advertise it in that way.

Little Market Takes Big Output

The lowly ice cream cone that sells for a nickel is estimated to provide an outlet for more than three hundred thousand gallons of cream each year. It is a very important factor in the present prosperous condition of the dairy industry. Likewise it is said that the use of raisins in bread and the five-cent package of raisins sold as a confection have been responsible for greatly improving the status of the raisin growers.

The great need of the honey producing industry is to find some outlet of similar nature. If a popular honey confection could be made which would become as popular as the ice cream cone, our marketing problem would be solved. The world is always waiting for something that is new and different. Perhaps some wide-awake individual can think of some new kind of confection which uses honey as its principal ingredient. If it strikes the public fancy and can be sold at a popular price, the potential sales are enormous.

The Age at Which Bees Build Comb

Not long ago, a German scientist made experiments in which he showed that the normal age at which bees build combs is between the twelfth and sixteenth day of their life. We believe, however, from practical experience, that when bees become short of combs to store their crop every bee will fill its honey sac to its full capacity and then the wax production will be universal among the members of the colony, although it is quite probable that those most active in wax producing are the ones of the age mentioned above. But wax producing seems universal when wax is badly needed. In a natural swarm which has issued from a hive full of honey and brood, every bee, or nearly every one, will have wax scales already formed in its organs. That explains why the old-time beekeepers thought that wax cost the bees very little, and some noted writers of the past thought themselves able to prove that combs did not cost over a pound of honey for each pound of wax, when in actual fact it costs fully ten pounds of honey for each pound of wax.

Uncle Sam's Beemen

Something About the Work of the Bee Culture Office and the Workers Who Have It In Charge

By Frank C. Pellett

AMONG the various government activities, agriculture is a major project. One of the finest organizations of trained men in all the world is found in the United States Department of Agriculture.

The man who says that the government is doing nothing for the farmer is either a fool or a liar. With a personnel of many hundreds of specialists with millions of dollars for expenses there is a constant effort to solve the farmer's problems. From Secretary Jardine down to the humblest clerk, these men are doing their best to serve rural America.

Because he does not happen to agree with some special forms of legislation advocated by certain politicians, the Secretary has been the target for a storm of abuse. They overlook the fact that there are a hundred other farm relief bills under consideration in congress. They also overlook the fact that many farm organizations are opposing this particular measure which they propose. Since the farmers of various sections are divided as to what should be done, the administration should at least be credited with honesty of purpose.

Recently it was my good pleasure to spend a few days in Washington and to see something of the work of several divisions of the farm department. The office of Bee Culture has a well equipped laboratory and efficient staff devoting its exclusive attention to the problems of those of us who live from the labor of the bees. Likewise they are cooperating with those in other divisions who are in position to lend assistance to the beekeeper.

It is a significant fact that when Hambleton, who has charge of the office of bee culture, goes into the field, many of the beeman call him "Jim." When the chief is Jim to his associates and the men in the field, he is getting close to the rank and file of those he is trying to serve.

It would be hard to find a better man for the job than this same "Jim" Hambleton. He is a quiet fellow and seems little impressed by the limelight but he gets things done. Really I was surprised to find how many different things he had started with a view of helping the situation of the beekeeper. Some months ago he interested the department of commerce in the question of finding export markets for our surplus honey. The result has been the sale of several

J. I. HAMBLETON

million pounds more honey abroad during the past year than the one before. This foreign movement greatly relieved the pressure on our home market. He has several other projects under way which have not yet had time to show results, but which our readers may expect to hear about later.

Mention has already been made in this magazine of the cooperative exhibit which has been placed in the United States National Museum. Live bees in glass hives attract the attention of thousands of visitors. Honey is shown from many sources and the variation in color explained by means of printed cards. Probably no single exhibit anywhere has done so much to convey to the public a correct impression concerning the product of the hive.

The honey poster recently published in the Government Printing Office to be sold at 15 cents per copy, the actual cost of printing, was planned in this office. That poster certainly is a dandy and will do the industry much good if only the beekeepers will buy it and put it where folks can see.

Jim's Personality

Hambleton is a farmer by instinct and inclination. If he followed his own desires he would be out of doors with the bees and the hens and the crops instead of in a government office. When his dreams come true that is what he will do. As long as we have country minded men on the job in Washington there need be no fear that the work will not go forward in a very practical manner. I have been much impressed with the practical aspect of all of Hambleton's work. He has due regard for scientific investigation, but he ties it up to everyday problems like getting a wider market and a better price for our honey. Only give him and his staff a little time and they will find ways and means of doing just that.

Hambleton was born in South America, served with the American forces in France, was educated in Ohio, taught in the Wisconsin University, and now serves the government in Washington. There is nothing very narrow about that experience. He has seen enough of the world to know what is worth while and is not likely to fritter away his time with trifles.

With all his administrative work he still finds time for some research work on his own account. He is making a study of flight activities of bees as related to wind, barometric pressure, humidity, solar radiation, hours of sunshine and temperature. All these factors have a bearing on the size of the honey crop and perhaps he will be able to find out some of the things which we need to know in order to make the most of our opportunities.

When you see Hambleton at a convention you will notice that he keeps in the background. Unless he is called upon he will have but little to say. He is always listening and considering the things that others have to offer. He keeps his ears and eyes wide open and misses little. After the meeting he goes back to Washington with a full understanding of all that has been discussed and a definite knowledge of just what the beekeepers consider their most serious problems. Then he proceeds to see what can be done toward solving them.

When one visits the bee culture office and takes note of the vast amount of valuable material which has been accumulated there, he cannot but regret that it is housed in a frame building. A fire would be

disastrous indeed and would result in the loss of many years of labor. It is to be hoped that before many years a fireproof laboratory may be provided.

Mrs. Margaret Shoemaker has charge of the files and also gives much time to the compilation of statistics relating to the industry. An effort is being made to secure extensive statistics concerning all important matters relating to the production and marketing of honey and wax. The value of such records will increase with the years.

The Staff

Conditions in Washington do not encourage workers to make a life time business of the government service. It is interesting to note that only one member of the staff of the bee culture office was there at the time of my first visit twelve years ago. Mrs. Marion Carter the chief clerk was in the office then and remains there now. The others all have changed from the chief to the stenographer.

Much publicity has attended the efforts to establish apicultural libraries at two of our agricultural colleges. Both of these institutions have extensive libraries and are well worthy of support. The bee culture office also has a very extensive library about which we may hear but little. Miss Ethel Coon is librarian and much of her time is occupied in compiling a bibliography of the beekeeping literature. This is a monumental undertaking and when finished will make available, in convenient form, a record of the world's beekeeping literature.

Perhaps you may have had a letter from the bee culture office and noticed the initials jih/ab in the lower corner. That "ab" indicates that the typing was done by Miss Aurelia Beck. The stenographer has no little job in an office like the one at Bee Culture Laboratory. Thousands of letters from beekeepers from all parts of America are received there with enquiries on every possible subject. Some member of the staff answers each letter with care and Miss Beck keeps her machine very busy to get them all written and mailed on time.

E. L. SECHRIST

E. L. Sechrist

I think that the initials E. L. must stand for "Early and Late." Anyway Sechrist seems to be always on the job and he has been in the bureau longer than any other beekeeping specialist. Sechrist has had a wider beekeeping experience than any other man I know. He began as a boy down East and the first work he did away from home was to work for a beekeeper in Ohio. Later he went to Africa and kept bees in connection with a mission station from 1901 to 1905. They were the native African bees, similar to Cyprians in disposition.

After his return from Africa he took up commercial honey production in California. There he remained, with the exception of a few months in the South Sea Islands, until he took up work for the government in 1917. The years 1919 and 1920 he spent in charge of large apiaries in the West Indies, where he secured valuable experience under tropical conditions. Since 1921 he has been back in the government work at Washington.

Sechrist's work is of a very practical nature. He installed the exhibit in the National Museum and cares for it. He handles much of the general correspondence, answering questions about management, honey plants, etc. Only recently he finished a very fine piece of work which was carried on by the Bureau of Entomology in cooperation with the Bureau of Agricultural Economics. The result is Circular 24, entitled "United States Grades, Color Standards, and Packing Requirements for Honey." This bulletin of 32 pages for the first time sets up a uniform standard for the grading and packing of honey and will do much to simplify our marketing problems.

Another cooperative project is already under way which will deal with management problems and the cost of production. This will involve extensive travel and the study of beekeeping under widely different conditions. His wide experience particularly fits Sechrist to do a good job at this work. A man who has depended upon the bees under so many

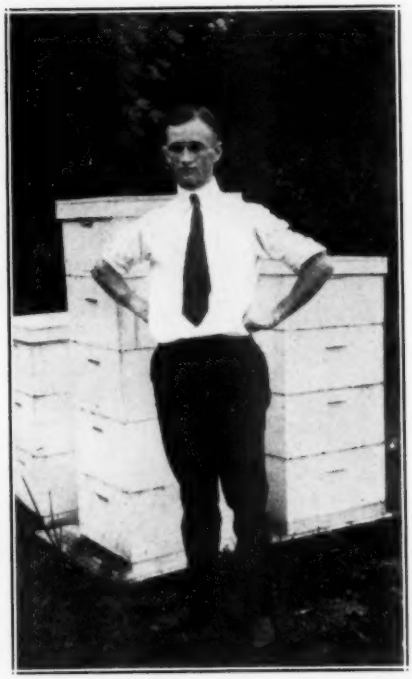
J. W. BULGER

different climatic conditions as he has done, will be able to appreciate the important factors in the problem which he has in hand.

If you ever are so fortunate as to catch the man with a little free time you will find him most interesting. He has a wealth of anecdotes about the natives of the South Sea Islands, our American tropics and the black folks of equatorial Africa. He can tell you not only about bees and beekeeping but folk lore, stories of wild life and many human interest experiences.

W. J. Nolan

Nolan is another fellow who has always worked with bees. For a time he assisted the late R. F. Holtermann in his extensive Canadian apiaries. Some of his most interesting experience, however, was quite out of the usual line. He was at the British front with the 27th division during the war and saw some very active service. When the fighting was over instead of being sent home with his buddies he went to Czecho-Slovakia with the American Relief Expedition. It was as a member of the Claims service in France that he renewed his beekeeping contacts. Soldiers tiring of the monotonous diet of the army camp would often help themselves to something in the way of variety when opportunity offered. In many cases they robbed the bees and of course it was up to Uncle Sam to pay the bill. Nolan found hard going when it came to settling these claims. First it had to be proven that it was American soldiers who did the damage and then it was not always easy to determine the amount of loss. Probably there is no better place to become acquainted with the peculiarities of human nature than



W. J. NOLAN

on a court of claims. Get Nolan to tell you about it sometime.

An interesting coincidence occurred when Nolan and Hambelton were assigned to the same school for army officers in France. Both were officers and they had not previously been acquainted. Neither at that time was connected with the Bureau of Entomology and it was some time later that they came together again in the close contact that their present work insures.

In 1921 Nolan began work in the Bee Culture Laboratory where he has since been working on brood rearing problems. He is making a study of the brood rearing cycle and noting the seasonal variation in relation to the pollen and nectar supply. His work has special application to breeding problems, to the production of package bees and the rearing of queens. We may expect some interesting results from his studies of the comparative biology of the races of bees and the various breeding problems which are under consideration.

J. W. Bulger

In Bulger we find a product of the last pioneer stage of the west. He was born in a dugout in western Kansas. There was little prospect that bees could ever find a living in the wheat fields of the plains region. Even yet there would not be much bee pasture in the region where he discovered America. Later he went to South Dakota and attended the College of Agriculture at Brookings. He had some very practical experience in entomology as a nursery inspector but knew little of bees until they needed a biochemist at the Bee Culture Laboratory. In 1924 Bulger joined the staff and set out to serve the beekeepers in a pioneer field. No methods of work had been established as applied to bee culture and he found it necessary to work out methods of study so that progress has necessarily been slow.

His studies deal with the death rate of bees, factors that cause death in winter, mortality and longevity. There are many factors which influence the length of life of a worker bee, such as temperature, humidity and other weather conditions. The length of active life of the individual bees largely determines their productive value in the hive. A knowledge of the importance of these various factors can be directly applied to our beekeeping practice.

Later he will take up an investigation of the digestion of proteins, etc.

C. E. Burnside

The newest man on the staff of the Washington office is C. E. Burnside who is but recently out of college but he has been quick to get into step and already has a good piece of original work to his credit.

Like many others who take beekeeping seriously, he started as a boy on the farm with a stray swarm. He developed an apiary which offered much of interest as well as providing him with funds by the time he had to leave it to take up his work in the Michigan College of Agriculture. In college he specialized in fungi and at that time had little idea that this subject had much to do with bees. When opportunity offered to take up the study of adult bee diseases he spent his vacations in that way, beginning in 1924.

He finds indications that there are several distinct diseases of the adult bees which are more or less confused

Left to right: W. J. Nolan, Mrs. Margaret Shoemaker, J. W. Bulger, Mrs. Marion Carter, C. E. Burnside, Miss Aurelia Beck, E. L. Sechrist, Miss Ethel Coon, J. I. Hambleton.

by the beekeepers. Already he has isolated the cause of one of these diseases and has named it, "Bacillus apisepticus." He has found that moisture is an important factor in the spread of this disease.

This story is confined to the workers at the Washington office as space will not permit a consideration of the field station activities at this time. At a later time we hope also to give our readers a glimpse of the work which is carried on there.

Honeydew From Sycamore

By C. W. Powell

I HAD heard of honeydew all my life and heard discussions as to where it came from and what it is, and have seen a deal of it since living here. Leaves of certain trees at times were covered with it and the grass and ground under such trees would be all messed up with it. Some people disputed its being produced by insects, and one man said he had seen honeydew before the leaves came out in spring and therefore it could not be an insect feeding on the leaves of trees.

Three weeks ago (November, 1927) I left my car under a sycamore tree in front of my house and I saw apparent rain falling from the tree, looking toward the sun. I told my wife it was not from the air, but from insects in the tree. I left my car stand under some oak trees until late that night. Next day when I went to get my car out of the garage there were drops of what seemed to be honey all over the car. I touched it and it was sticky like honey, and tasted sweet. I wondered how honey in drops got on the car. Then I remembered the rain from the sycamore tree and went out to the tree and found the sidewalk and grass covered with it, and it was dripping from the leaves and branches of the tree, and then I saw a familiar insect on the under side of the branches. I say familiar insect, as I had seen them on a pawpaw tree in my yard other years, but did not discover that they were the honeydew makers. But this time I saw them ejecting the small drops that looked like rain falling from the tree. The liquid they eject is clear and sweet. This is my theory: They suck sap from trees that have sweet sap. You have seen it ooze out of green hickory and oak wood when burning. The insects being on the under side of the branches shows they do not get their sustenance from the leaves of the tree, and also accounts for the top of the leaves being coated, and not the under side. It does not fall during the night only, either. The insects keep ejecting it all the time. But dew has something to do with the idea of honeydew. That which drops in the day time

C. E. BURNSIDE

readily dries up and is not seen by the casual observer. During the night the natural dew thins this honey (?) on the leaves and it drips off in such quantities that it messes up the ground under such trees.

The insect is greyish in color and when full grown is about the size of a small pea. A few develop wings, but the balance are wingless. There are a few on the sycamore at this time (December 8), although it has been quite cold several times since I discovered them, about six weeks ago. Last night the thermometer went down to 7 above. The tree has been leafless at least three weeks.

Joplin, Mo.

(The aphids sent to this office were identified by Dr. C. L. Metcalf, of the Illinois University, as sycamore aphid, **Longistigma (Lacknus) caryæ**—Editor.)

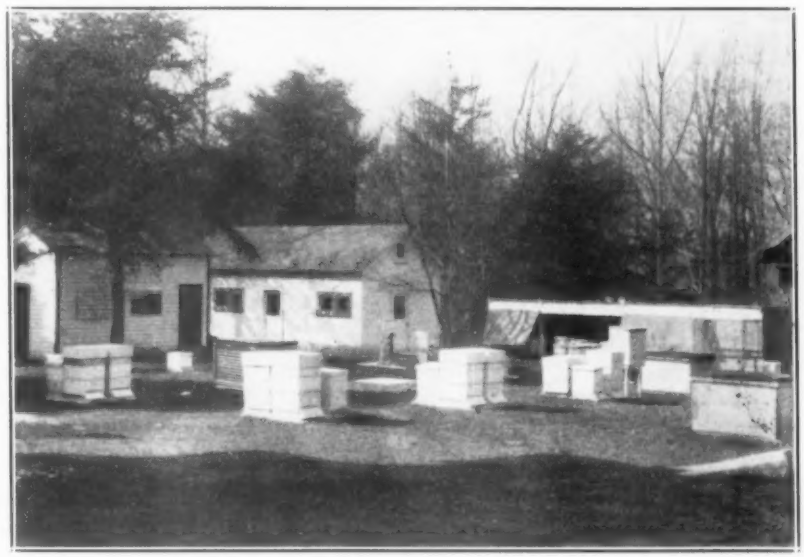
Enemies of Bees

By W. J. Nolan

At first thought it may seem that not many animal enemies of the honeybee are to be found in beekeeping literature in the United States, but among those which have interested our beekeepers are the waxmoth, the bee louse, the mite **Acarapis woodi**, robber flies, ants, mice, dragon flies, skunks, certain birds, toads, snakes, and lizards. A compilation of all the known animal enemies of the honeybee throughout the world, however, makes a large array. This is well brought out in a recent book, "Enemies of Bees," by Prof. A. G. Beliawsky, of Leningrad, Russia.

In two hundred pages, which contain many illustrations, Professor Beliawsky describes some seventy species of animal enemies of the honeybee. Seven of these species are found among mammals, and include, among others, bears, skunks, mice, and porcupines. Fourteen species of birds are listed, two species of lizards, and three species of snakes. Both the frog and toad are represented.

Insects lead the list with thirty-five species, one-half of the total. Over one third of these insect species, thirteen in all, belong to the Hymenoptera, the order which includes the honeybee. Especially well described and illustrated by original photographs are three species of Meloid beetles, which in their triungulin or larval stage are enemies of the honeybee. They have been reported in particular from central Europe. None of these three species



View of part of Government Apiary

has yet been reported as an offender in the United States. Acarapis woodi is, of course, one of the Arachnids described.

The book also includes one species of worms and two species of protozoa. These protozoans are **Nosema apis** and **Malpighamoeba mellificae.** The latter was first found present in this country in 1927 by Dr. J. W. Bulger, at that time connected with the Bee Culture Laboratory.

This book is the only one devoted exclusively to animal enemies of the honeybee, and should prove instructive and of interest to any beekeeper reading it. It is to be hoped that translations will make it available to all beekeepers who cannot read Russian. Washington, D. C.

European Foulbrood In Oregon

By H. E. Weisner

IN The Editor's Answers Department of the April number of this Journal an Oregon beekeeper inquires the probability of good Italian colonies cleaning up badly diseased combs of brood in cases of European foulbrood, and as you suggested that his trouble might be due to chilled or starved brood rather than diseased brood I wish to say that if you had ever had the experience with European foulbrood in Western Oregon that I have had, you would not for a moment doubt that the inquirer's diagnosis is correct. Having had so much trouble with that brood disease, I naturally read with great interest all writings upon the subject that came to my notice, and I have discussed it with several beemen of unquestioned knowledge and experience and I long ago came to the conclusion that under the conditions described by your correspondent, that European foulbrood is much more severe in the damp, chilly climate of the North Pacific Coast region than in any other part of the continent where the disease is known.

Mr. J. E. Crane, as I remember, once wrote that the disease is known much more severe upon some classes of soil than upon others, and this I have also had good reason to believe thru my own observations.

I was a beginner in beekeeping in Western Oregon when European foulbrood first made its appearance there, and probably at least three out of every five farmers had some bees, some of them having fairly large apiaries, but in three years' time the number of bees in that area was reduced to not more than 10% of the original number, and perhaps 5% would be nearer the correct estimate. Everywhere, was heard the plaint: "The moths killed all our bees." It is generally during the rearing of the second or third generation of brood in the spring that the disease is most destructive, especially if a protracted cold, rainy spell of weather should occur at that time, which is often the case. The usual run of events would be about thus: Along in February brood rearing would begin and for several weeks little or no diseased brood could be found (this among colonies of good Italian stock) and with the coming of warmer weather the colonies would be building up rapidly, then would come a spell of a week or so when no manipulations could very well be made, owing to the inclement weather and for the same reason the bees could not gather any fresh supplies. When the beekeeper next inspected his colonies he would be alarmed at the amount of diseased brood and within another week or two from one-fourth to three-fourths of the brood in nearly all the colonies would be dead and rotting. At this time the colonies would be generally quite strong in bees and they would be doing all they could to keep the cells cleaned up, but they seldom if ever succeeded until the main honeyflow began, unless the beekeeper gave them an opportunity by dequeening or caging their queens for ten days or longer, so that there would be a period of some days in which no brood was developing, giving the workers a chance to clean out the combs. I have seen some terribly foul combs that were later cleaned up by a strong colony, but I have also known of cases where the bees became discouraged by the mass of rottenness about them and swarmed out. I have had occasion to examine several colonies that had taken possession of a nest that had been depopulated a short time previously thru desertion because of the foulnesss or by the death of all the bees, enough time having elapsed to permit the decayed brood to dry up, so that it could be easily cleaned out, and in each case there was yet a circle of cells around the outside of the new broodnest that contained decayed larvae, which the newcomers had not yet removed, yet none of the new brood showed any signs of the infection and no doubt would not until the following year. One of these nests was in the hollow trunk of a tree, another was between the walls of a house, and one in a modern hive. This shows that, given a chance, a strong colony will clean out very foul combs in cases of European foulbrood. Whether or not it is advisable to use such combs again, owing to the likelihood of the reappearance of the the disease the following year, is a question that I do not think has been definitely settled, but I do know that there were years in which I had practically no other kind of combs to use, so that if they had not been used I would have been out of the business. I was criticised by some for going to all the trouble of making frequent examinations, caging queens, destroying queen cells, etc., instead of letting nature take its course, but none of my neighbors secured larger crops of honey than I and few, if any, quite so large. Dr. Phillips gave a lecture in that part of the country in 1918, I think, and he could not understand why methods of control that were so successfully applied to cases of European foulbrood elsewhere should not be equally effective there, and such a learned and practical beeman as Mr. M. C. Richter once told the writer that he would not hestitate to bring an apiary, rotten with European foulbrood, into one of his own healthy apiaries and proceed to clean it up right there, but I have no doubt that had Mr. Richter had one or two seasons of experience with the malady in western Oregon or Washington he would have been convinced, as were most beekeepers there, that it was much harder to control in that climate than in the comparatively dry and sunny climate of California.

I have not been in that part of the country for more than eight years, but I have been informed by a practical beekeeper there that the disease seems to be much less severe than formerly, which has been the experience in other parts of the country where it was once so destructive.

However, as in the case of other diseases, it is quite likely to break out with unusual severity when conditions are particularly favorable to its spreading.

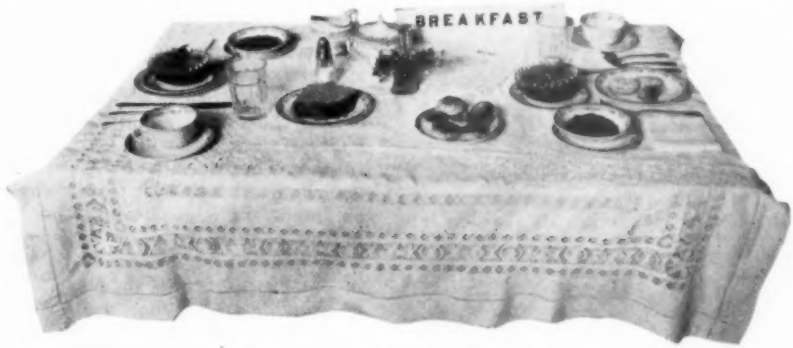
The rapidity with which European foulbrood spreads, as contrasted with the spread of American foulbrood, within the colony, thruout the apiary and over vast areas is a phenomenom for which I have never heard a plausible explanation, except in the first instance, for I think that it is a generally accepted theory that the workers suck out the juices of the dead larvae before they become putrid and in this way carry the infection to the healthy.

Arizona.

A Story of the Honey Meals

By Thelma Rae.

IT was Veishea! Gay, carnival-spirited Veishea. Every co-ed's heart was a-flutter, every house and hall was decorated, and everyone was preparing for the big parade, dances and shows. But Veishea is an educational, as well as a happy time for Ames. The word "Veishea" is made by taking the first letter of each department at Ames—V for veterinary, E for engineering, and so on. During Veishea every department has an open house and puts on an exhibit so that visitors and students may inspect and learn about the courses offered at Ames.



Breakfast—Grapefruit and honey, biscuits and honey, chocolate and honey

Of course, we wished to make the bee room in the Science Building as interesting and instructive as possible, so we prepared three display meals, using good old Iowa's sweet clover honey in nearly all of our foods.

The table nearest the door was laid for breakfast. The products demonstrated at this table were grapefruit sweetened with honey, a cereal, baking powder biscuits served with honey, and delicious hot chocolate, also sweetened with honey.

Sandwiches, made by combining honey and peanut butter for the filling, were delicious and were served with honey cookies, honey lemonade, and, best of all, honey fudge. This made an attractive display for the luncheon table.

The products that were found on the dinner table were honey cocktail, breaded pork chops, honeyed sweet potatoes, hot Parker House rolls, honey drop cakes, and ice cream with honey. Ice cream and honey is a favorite dish of all classes in beekeeping.

After being treated to this dish the class never forgot it, and every laboratory day some member of the class would collect a dime from each one of us and dash madly over to the dairy for a brick of college ice cream. Then out would come the pails of honey for samplers. Was it good? Just try it!

Every delicacy demonstrated at these tables was simple and easy to prepare, as can be seen by the following recipes:

An excellent cold sugar frosting for cakes and cookies can be made by combining one tablespoon of melted butter and three or four tablespoons of honey with powdered sugar. If one wishes, a few drops of vanilla may be added.

The honey fudge is really good. Use two cups of sugar, one tablespoon of butter, one cup of liquid (one-half milk or water and the other one-half honey). Cook over a slow fire until it forms a soft ball. Let cool, stir, roll or drop. Vanilla and nuts may be added.

It is not necessary to give a recipe for honey cookies and cake, for these can be found in any good cook book. If one has not tried these, do so, and you will be surprised and delighted to find how well honey blends and what a mellow, golden-brown your products will be.

Honey, nature's own sweetness, can be used in a great many ways to enhance the flavor of food. Here are a few of them:

The morning grapefruit can be made very appetizing if honey has been poured over its cut surface the night before. In fact, all fruits are good if sweetened with honey. Honey cocktail is a real favorite at our house.

One will be delighted with the results you receive by using honey in drinks. It enhances the flavor of a hot drink, such as hot chocolate. Also, it is easy to use it in cold drinks, for it blends perfectly and dissolves immediately. However, if one does not like the flavor of cold drink sweetened entirely with honey, try making a medium sugar syrup and then add to this four tablespoons of honey. Put this solution away in your ice box and you will have a mixture that will sweeten and dissolve immediately and that will improve the flavor of your ice drinks.

Sweet potatoes can be candied in honey to make an interesting new dish. Use some brown sugar, if you wish, but I like to simply brown my sweet potatoes in a mixture of honey and butter.

So much for honey cooking. There is a great deal more that could be said about the desirable elements, needed vitamins, and pure sunshine contained in honey, but if this article will induce you to use more of one of nature's finest desserts, our time in preparing the exhibit and writing this little article will be well spent.

Iowa.

Lunch—Sandwiches, cookies, lemonade and fudge, all sweetened with honey

Honey at Cooking Schools

Miss Mary Barber of the Kellogg Company holds cooking schools from time to time in connection with various state and county meetings. In all of these schools she uses honey in some form of cookery. At a recent cooking school she made a honey cake and baked a ham which had been brushed with honey. Always the housewife goes away with some suggestion for using honey.

Miss Rae answers a question: How will the housewife accept honey? Only when she knows how to use it. That education is the beekeepers' problem, not the housewives'.

Dinner—Honey cocktail, honeyed sweet potatoes, drop cakes and ice cream sweetened with honey, besides rolls and chops

Strawberries

By Betty B.

THEY say hobby-riding keeps people young. In that case my John is a spirit of perpetual youth. His particular fad is, as might be expected, HONEYS—honey of every color, variety, and flavor. Whenever some bee man or a bee journal mentions a different honey, John is for immediately sampling it. Of course, we send for it, and taste and test and compare, until now, after five years of this sort of thing, I feel sure I could ably qualify as government honey taster, should Dr. Hambleton finally decide his new-fangled honey grader too amateurish.

Consequently we have had honeys from everywhere—the United States, Canada, Mexico, the West Indies, Europe, China; honeys sweet, bitter, insipid; flavors from floor wax to pepper, quinine to sassafras. Once we got some of the famous heather honey from England and expected a treat, but if what came was real heather honey, then give me good old buckwheat.

Sometimes we have had new flavored honey in our own yard, as when our farmers all went into the soy bean business or when our bees harvested our neighbor's sun-dried cherry preserves. The California honeys seemed especially to allure John's fancy, until finally in his enthusiasm he sent for two sixty-pound cans of orange blossom honey, which is really delicious; but the freight bill—well, a hobby is all right as long as one does not have to wear one's winter hat a third season to pay the bill.

John and I have always been hankering for peach blossom honey. Somehow it did sound so alluring! Well, this year we got it. Take my advice and don't ever go in for peach blossom surplus! Honeydew is much to be preferred, with, of course, certain restrictions. Now, personally, I have always had a craving for dandelion honey. The jolly yellow blossoms do look so gorgeous and the bees blunder over them in such joyous ecstasy. I have always wondered, considering how every roadside is fairly golden with blossoms, why John's bees never managed to get us a taste; but now I know the reason. It is the multitude of spring green pickers the city fairly oozes every spring along our roadsides. No doubt spring greens are fine, but what an appetite a busy housewife must work up taking a whole forenoon to get one basket of greens that will cook down to a mere cupful! I wonder what the rest of her family eat. But this spring decided me; I know it is the dandelions that go into this very dish of greens that take away our surplus of dandelion honey. That is another thing the American beekeepers should look into and regulate.

Recently John heard that L. T. Floyd specializes on garlic honey up there in Manitoba, and for six weeks past has been all for getting a case of that; but for once I have objected—I simply draw the line there. Garlic honey—I wonder!

Today our bees are working energetically on the strawberry blooms. Bless them! If they don't get us a surplus or even a taste of strawberry honey, at least they are helping get strawberries for us. I am sure it must have been strawberries and cream that tempted old Adam, especially if Eve put a dash of honey on them. The wonder is, Eve did not eat them all herself! Could anything be more delicious, more healthful, more beautiful than strawberries with honey and cream? We believe in eating all fruits in season as far as possible, so as soon as the earliest strawberries are ripe we begin with shortcakes and tapiocas, rice and custards, for in serving them that way a few strawberries "go a long way," as my grandmother used to say.

For shortcakes, sometimes we use a rich biscuit dough of partly whole wheat flour and sweetened with honey; but usually we use what we call "five-minute honey cake," which is a splendid basic white honey cake. In baking with honey successfully, I find two things essential—a thorough blending of the honey with the other ingredients and an extremely slow oven. If one keeps these two points in mind, baking with honey is a joy.

Five-Minute Honey Cake
(One Layer)

1 egg
Two-thirds cup light honey
4 tablespoons melted shortening
½ teaspoonful vanilla
1 pinch soda and pinch of salt
1½ cups flour
2 teaspoonfuls baking powder
½ cup milk

Beat egg, honey and shortening until extremely light with a Dover egg beater (the more the better). Sift flour, soda, salt and baking powder, then add alternately with the milk to the former ingredients. Beat well, add vanilla, and bake in slow oven. Remove from pan, cut in squares, put on service plates, cover with slightly mashed strawberries (other fruit may be used in season), add one tablespoonful of honey and whipped cream to each serving. Excellent either warm or cold.

Strawberries served with whole rice, minute tapioca or baked custard (in all of which honey should be used instead of sugar) are excellent and especially wholesome for the youngsters. Strawberries served

with bananas, or with pineapple, either with honey and whipped cream or with a honey mayonnaise made of whipped cream, honey and just enough lemon juice to give it a "kick," are most delicious and always enthusiastically welcomed.

Then, when the berries really get plentiful, what a wealth of happiness is in store for the housewife and her family in strawberry preserves and jellies. Two precautions should be observed, however: In using honey, there is greater tendency to "boil over," and the products must be cooked slightly longer than is required in the use of sugar. For preserves, use equal weights of strawberries and light honey; mix carefully and dry in the hot sun, or preferably in a warm oven; put into carefully sterilized glasses and cover with paraffine. In using honey for plain canned strawberries, merely substitute a similar amount of light honey for the sugar. We find the result so far superior that we shall never again use sugar in canning fruit.

Delicious strawberry jelly can be made by using commercial pectin (Certo), substituting for the sugar an equal amount of light honey.

By all means, prepare a few jars of strawberry - pineapple conserve, using one part of raw pineapple, cut into small pieces, to two parts of crushed strawberries. To each pound of fruit mixture add three-fourths pound of light honey. Cook slowly, stirring occasionally, until thick, and can in sterilized jars.

By all means let us combine strawberries and honey this season in our menu. Your family will appreciate it. Your health will be improved by the discontinued use of sugar and the eating of honey; and you will at the same time be helping to take care of this "honey surplus" we hear so much about. If at any time I can help you beekeepers-in-law in your honey cooking problems, I shall be pleased to help you.

Moving Bees Short Distance by the Newspaper Method

By Domenic Barone

LAST year a friend of mine asked me how he could move sixteen hives from one side of his farm-house to the other with the least inconvenience possible. My first advice was according to the orthodox method—that is, carrying the hives to a place not less than three kilometers far away, and, after having them stay there about twenty-five or thirty days, moving them back to the new place.

Thinking over this moving of bees a short distance the rest of that day, and the next night, too, came to my mind the idea of resorting to the newspaper method, so largely used now in uniting bees of two or more colonies from different places in the apiary. We all know that the queenless bees, after having been confined for three or four days in the hive body placed on top of the queenright colony from which were kept separated by a newspaper, **do not return to their former place.**

Filled with interest and enthusiasm, also exceedingly anxious to see how the scheme would work, the next day I went to my friend and explained to him the plan. He accepted it and was willing to help me right away.

It was a day of the first week of May and the bees were flying freely. From every colony I took out the queen, all the combs with brood and the bees covering these combs, putting them into an empty brood chamber. I carried this afterward to the new place assigned to it, about fifty meters distant. So before night I had altogether thirty-two colonies, of which sixteen were still on the old stands, but queenless, broodless and deprived of a large part of bees. I let the colonies stay in this condition three days, time enough for all the field bees to rejoin those left in the hives on the old stands. (Of course, I would have waited longer if the bees, on account of atmospheric adversities, had had no chances to fly.) On the third day, just before sunset, I spread on the top of the frames of every queenright colony two thicknesses of newspaper. I went to the queenless ones and, making use of very little smoke, so that most of the bees loafing on the bottoms could join those on the combs, I lifted the brood chambers and carefully and gently carried these to the new locality, placing one by one on the top of that colony with the queen to which the queenless bees belong. To disturb the bees the least possible in the moment of moving (this is very important), I took care to get the brood chambers loose from the bottoms before noon. After about one week, when the bees had removed the papers almost completely, of the thirty-two colonies I made again only sixteen happy and content.

For some days after the moving, I noticed few bees flying over the old place, getting fewer and fewer every day, but I have good reason to argue that those bees were just the ones left on the bottoms when I carried the brood chambers with the queenless bees from the old to the new place. On or about the twenty-fifth of that same month, May, the honeyflow started and the colonies gave of themselves the best account they could under the most adverse conditions can be ever imagined. The year 1927 will pass into history as the driest year ever recorded in Europe generally, and in Italy especially; for more than six months we did not get a drop of rain and, of course, all the crops suffered disastrously.

On the whole, I can assure you that the whole operation of moving the sixteen colonies a short distance was a complete success. For brevity's sake, it is superfluous to consider or examine all the circumstances and factors determining this success, because they are not more nor less than those which make so effective the union of colonies by the newspaper trick, due to Dr. Miller's ingenuity. What I did consisted just in the practical application of this trick to the moving of bees a short distance. Application this that seems to me no beekeeper had tried before.

Will you, readers, kindly take note of the above described plan so, as the occasion affords, you may try and improve upon it, if possible or necessary. In all probability another problem might have been solved in practical beekeeping.

Have Our Industrious Little Bees Overlooked Something?

By Associated Press to Washington (D. C.) Post

New York, Dec. 1.—Thomas A. Edison, who has been extracting rubber from **dandelions, goldenrod, asters** and a variety of other native plants at his laboratory at East Orange, N. J., exhibited the results of his research today to a party of Erie Railroad officials, headed by John J. Bernet, president. They had journeyed to Edison's laboratories to pay their respects to the inventor as an old-time telegrapher and colleague.

"Bernet," queried Edison of the railroad president, "on what railroad did you learn to telegraph?"

"The old Lake Shore & Michigan Southern," replied the president of the Erie.

"Ah, ha!" rejoined Mr. Edison, dryly, "that's the railroad I got fired from."

International Congress

The eighth International Congress of Beekeepers will be held in Turin (Torino), Italy, September 10 to 17, 1928. A detailed program will be published in our columns soon. The address of the secretary is, Leon Tombu, 185 Rue Gaucherest, Brussells, Belgium. Meetings will be held in several languages.

May Disease

By Dr. L. Lardinois

HAZARD sometimes leads us towards a goal quite different from that which we had proposed to attain. It was thus that, having deliberately engaged myself in the study of the wounding apparatus of the honeybee and of the effects of its poison on our organs, I found myself drawn towards the diseases to which this insect is subject and which evidently constitute for the apiarist a most important chapter. The hive which produced the bees that I used in the study of the sting was suffering from disease in a very pronounced degree. I was naturally induced to proceed, by this occasion, into the search for "Bacillus depilis," considered, rightfully or wrongfully, as the cause of the trouble.

While examining young larvæ, still bathed in the nourishing pap, dead nymphs thrown out of the hive, bees and fresh gathered honey, it was easy to ascertain that the case did not concern either a bacillus or bacteria, for it appeared clearly that microscopic cryptogams had completely invaded the honey, the brood, as well as the adult bees, and that it was probably the spores of these cryptogams that had been formerly mistaken for bacilli. These microscopic cryptogams did not differ in appearance from those that are habitually found in sweet liquids which ferment, and especially in metheglin. This discovery should not astonish anyone, for there are a thousand chances to one that the microscopic organisms that we find in the sweet environments appertaining to the hive, as in honey, in nectar or in the nourishing fluids provided for the larvæ, be yeast fungi and not bacteria. Have they not told us that microbes could not reproduce in honey? Do not the young larvæ just hatched at the bottom of the cells live in a honeyed liquid?

For a long time past, some beekeepers have intuitively suspected that the diseases of the adult bee were due to fermented honey or pollen, but up to this time no one has applied himself to the identification of the responsible ferments or to search for the circumstances which favor their development.

The characters which are common in the bacteria on one side, and in the ferments and their spores on the other side, are numerous. Thus confusion between the bacteria and the spores of ferments is not only possible but inevitable in many cases; the more so since bacteria and ferments are inferior cryptogams belonging to the same order. The classification of the various ferments is not very clear either; this is to such an extent that, when comparing on this subject writers of different languages, it is next to impossible to gather concordant information.

Be this as it may, we often find, in honey as in many sweet mediums, microscopic cryptogams which, under certain conditions, provoke fermentation. These cryptogams are called "Saccharomyces." They are real plants, reduced to a most simple organization, composed of a single cell formed of a protoplasmic nucleus surrounded by a covering. These cells reproduce by means of spores or multiply by budding, with great speed. They live mainly isolated, sometimes associated to others, forming chains, colonies more or less lengthy, or clusters which are termed "zooglæ."

Owing to the simplicity of their organization, these cryptogams are endowed with a peculiarity which is not usually sufficiently considered,

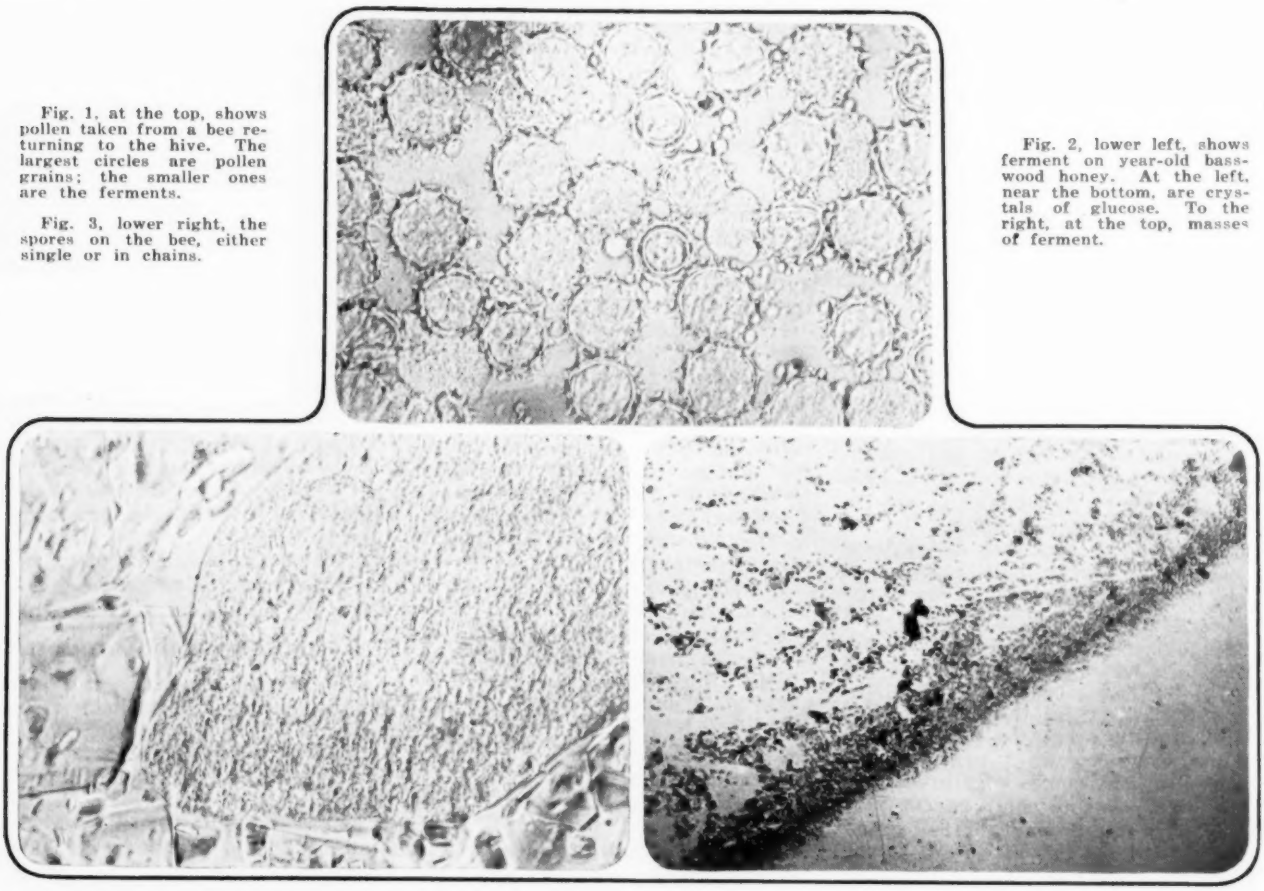


Fig. 1, at the top, shows pollen taken from a bee returning to the hive. The largest circles are pollen grains; the smaller ones are the ferments.

Fig. 2, lower left, shows ferment on year-old basswood honey. At the left, near the bottom, are crystals of glucose. To the right, at the top, masses of ferment.

Fig. 3, lower right, the spores on the bee, either single or in chains.

but which may explain many things. This peculiar virtue, which is called "polymorphism," or "pleomorphism," is common to several cryptogams. Owing to this, some writers designate the ferments under the name of "plemorphic microbes." This means that their characters are not stable. Their shape, their mode of activity change according to the composition of the milieu in which they find themselves and according to the conditions which control those milieus. Thus, sometimes their dimensions are reduced to such an extent that they are invisible to powerful microscopes; sometimes, on the contrary, they form clusters in the liquids, or "voiles" on the surface of these liquids, or aerial vegetations which render them conspicuous. I may cite as example the beer ferment (Sacch. cereviside), the flowers of wine (Sacch. mycoderma), and the rush or aphtæ of new-born children (Sacch. albicans). These are the only three saccharomyces recorded in the "Flore Mycologique" of the district of the vicinity of Brussels of Mme. Rousseau. Elsewhere, however, other kinds are described, among which some are pathogenic to man, to animals and to insects.

Under the shape of budding cells or levures, these fungi produce in sweet liquids either alcoholic, or acetic, or viscous fermentations. In the course of alcoholic fermentation there are produced, besides alcohol, some carbolic acid, some glycerine, some succinic acid, some fats, some ethers and some enzymes. Among these enzymes, some are genuine poisons, comparable in every way to microbian toxins, which are directed, when of a pathogenic kind, against the invaded organisms. The yeasts, when they are well nourished and when the temperature and moisture conditions are favorable, are perhaps not in need of active enzymes (enzymes de combat). They develop with speed and the different products which they create give them preventive properties against rival microorganisms. It is not so concerning a transitory form of these ferments which, for want of a better name, may be called embryonic form or spore.

In the scantily sweetened milieus, containing a notable proportion of azotized materials, produced by the waste of animal life, such as urea, uric acid and the foul-smelling products of perspiration and of urine, the spores of these ferments live and multiply by budding, as do the cells of yeast. They do not go beyond this embryo stage. Their dimensions do not exceed one-thousandth to one ten-thousandth millimeter. Their behavior in these mediums, as well as in the living organisms in which they have penetrated, appear in phenomenons of decomposition and in the emission of ammoniacal products. These spores are, decidedly, extremely fine fragments of the protoplasm, a few organic molecules which become surrounded with a more or less thick coating consisting in cellulose. They are of such a lightness, tenuity and subtility as to be equal to filterable virus. Dragged away by gases under light pressure, they may indeed be dragged through porous walls. They offer a great resistance to chemical and physical agents. It is this embryonic form which, in my humble opinion, has been taken for bacteria. It is found in large quantity in the digestive tube and in the plasma of the honeybee, where it causes grave disorders.

In order to be thorough, one should also say something about the pigments secreted by all these microorganism, pigments which we find in the honeybee; it is especially necessary to describe the remarkable and characteristic actions performed by the spores and principally by the embryos when they arrange themselves in chains, like streptococci. These motions are so speedy and so varied that one imagines, at first sight, that inferior animalcules have developed in the medium under observation. However, the ferment cells a little further developed are also liable to become displaced with speed and in various modes. One should also analyze the diverse modalities of virulence of these spores as well as the conditions which cause this virulence and those modalities

The original, primitive form of the ferment of metheglin or mead is gathered by the bees, in the flowers, with the nectar and the pollen. This primitive form is the **Dematium** of Pasteur, a microscopic cryptogam, unicellular, very resistant to atmospheric changes, living in contact with the air and constantly emitting, from its surface, embryonic spores which scatter wherever there are organic materials susceptible of decomposing or fermenting. Let me add that many botanists frequently use the term "embryo" to designate the spores of cryptogams.

The "Dematium" adheres to the surface of plants like a true parasite. It is cosmopolitan. It is probably the most widely diffused fungus and its role in nature is considerable. Its fine and mobile spores penetrate within living organisms of any sort with the greatest ease.

For reference, I indicate the works of Pasteur, the Atlas of Mushrooms of Coupin, a recent treatise of Bacteriology of Fuhrmann. But alas! Not one of these writers can give us full satisfaction, for in regard to the matter which now occupies us their works present regrettable gaps. Thus Fuhrmann mentions some 250 to 300 bacteria for the discovery of which he had to move the heavens and the earth and dig, even in places not to be mentioned. But the honeybee is not mentioned a single time in any of those works. Neither do they mention Bacillus depilis, nor the bacilli of the brood, yet the honeybee is perhaps the most ancient and the mose useful of our domestic animals.

Figure 1 shows pollen taken from the basket of a bee returning to the hive. The largest circles, those that are indented, represent grains of pollen. The smaller circles, diminishing in size down to the size of a dot, represent the ferments.

Figure 2 shows ferment on the surface of honey, basswood honey a year old. At the left near the bottom are crystals of glucose. To the right at the top, samples of ferment. This mass of ferment comes from a cell which existed in the honey. Impeded by the concentration of the sugars in the honey, it could not develop outside of its primitive folds. The small spots are endogenous spores; the circles of diverse dimensions which cross over one another are cells of ferment.

Figure 3 shows the spores on the bee. They are either isolated or disposed in chains. When colored with methylene blue, the nucleus appears of pink color, its covering of deep blue. These spores play the same part here as bacteria, without belonging exclusively to the honeybee. If we put some beer ferment in an urea solution, with a little sea salt, we will secure similar results.

Watermael, Belgium.

(To be continued)

Bees In Orchards

There are about one thousand acres of orchard in this vicinity, and most of the growers are just awakening to the importance of bees as pollinizers. Last year we imported twenty-five packages from California and results were so apparent that this year one hundred three-pound packages will be shipped in.

Last year when the trees were in bloom the three-pound packages drew out and filled six sheets of foundation each in ten days, and besides built comb on the lids.

As soon as the bloom is over, I move the bees to the hills, as the arsenical spray used in the orchard usually kills the bees.

Last year we had some few hives cleaned out by yellowjackets, which was something new for me. Another small yard in the hills was nearly cleaned out by bears.

John C. Hopfinger, Wash.

Calcium Cyanide—Its Uses to the Beekeeper

By Roger C. Smith, Kansas State Agricultural College

IN the December number of the American Bee Journal (Vol. 67, page 634), the editor implies doubt as to the advisability of using calcium cyanide in the fumigation of honey. Apparently calcium cyanide is not very well understood by many beekeepers. As I have carried on investigational work with calcium cyanides for approximately four years (1), Dr. R. L. Parker, State Apiarist of Kansas, suggested that a brief discussion of calcium cyanides and of my brief experience in connection with its use in the apiary might prove of interest.

(1) Smith, Roger C. "House Fumigation with Calcium Cyanide," Jour. Econ. Ent., 1926. 19:65-77.

A paper on Calcyanide is awaiting publication in the above journal.

What Is Calcium Cyanide?

There are two forms of calcium cyanide now on the market. Both are chemical unions of hydrogen cyanide with lime and give off the poisonous hydrocyanic acid gas upon exposure by a chemical reaction with atmospheric moisture.

The older product is known as "Cyanogas" and is manufactured by the American Cyanamid Company of New York City. It can be obtained from the Kansas City headquarters and many other distributing points at a cost of 60 cents a pound in one-pound cans to 40 cents in 25-pound cans. "Cyanogas" is a crude calcium cyanide containing approximately 50 per cent cyanide and available in dust, flake or granule forms. This material is used at the rate of two pounds of the granules (or flakes) to 1000 cubic feet of closed space. The cyanide may be spread thinly on the floor or on papers and left for eight to twenty-four hours. A humidity of 50 to 75 per cent and a temperature of at least 70° F. is desirable.

The other product is known as "Calcyanide" and is manufactured by the Calcyanide Company of Los Angeles, California. It is a commercially pure calcium cyanide. Grade 1, or the 100 per cent grade, is spread as above in closed buildings at the rate of one pound to 1500 cubic feet of enclosed space and left for four to twenty-four hours. This material reacts with atmospheric moisture very much faster than "Cyanogas" does, so that the fumigation time may be reduced to a few hours. However, if the building is tight and penetration is required, a longer period up to twenty-four hours is surest of success. A lower per cent humidity is satisfactory for this product, hence it is more suitable for winter fumigation in heated rooms. The temperature in any fumigation must be such that the insects to be killed are active. This material sells for $1.05 in three- or five-pound sifter-top cans, and $1.15 in one-pound cans, at this writing.

In using these materials, one must realize that he is handling a powerful poison. One should prepare the room or building for fumigation by closing all openings, even to sealing doors and windows, being certain to remove pets, potted plants or anything which is not to be killed. It is highly essential that no persons be in the building or adjoining rooms and that no one enter the building during the fumigation. Dust the cyanide on the floor or papers while holding your breath or being careful not to breathe any of the dust. Lock the doors. Post a sign. After the fumigation open the windows from the outside, air out the building thoroughly for a half hour, and carry out the residue.

The chief advantages of hydrocyanic gas are that it is tremendously powerful and effective, if sufficient dosage is used. It leaves no odor or taste on anything, except possibly milk and butter. It is not very expensive and it is quick, convenient and easy to handle.

Uses to the Apiculturist

For at least the last three years, I have put my comb honey crop in supers, tiering them up, and have fumigated the honey with "Cyanogas" to kill the waxmoth, using perhaps **a tablespoonful to four or five supers.** I set the supers on a newspaper and covered them in a similar way. The calcium cyanide was sprinkled on the bottom paper before setting the supers on or placed in a can lid and set on top. I did not bother to remove it. Sometimes I repeated the fumigation in two or three months, depending on the evidence or dangers of reinfestation. I always fumigate my honey whether I see evidences of waxmoth or not, for this gas kills all stages, even the eggs. We have never detected the slightest foreign taste or odor from the fumigating, and have been in no way affected from eating the honey. Investigations made by the Department of Agriculture, by E. L. Griffin and others, recorded in U. S. D. A. Dept. Bulletin 1149, 1923, 16 pages, show that honey, both capped and uncapped, absorbs only very small and entirely inconsequential amounts of this gas during fumigation. They say (page 14): "The absorption of hydrocyanic acid by uncapped honey was unexpectedly low." This small amount, which they found not to exceed nine parts to the million, is rapidly given off upon exposure to air.

One could use calcium cyanide to fumigate a honey house for waxmoth, ants, mice or rats. Supers and brood chambers could be left uncovered and a large number fumigated at once. The directions for closed buildings given above would apply. Both Doctors J. H. Merrill and R. L. Parker have used it to fumigate old brood frames in hive boxes for waxmoth, with complete success.

Finally, those beekeepers who kill their colonies in the fall and extract the frames would find this a very satisfactory killing agency. A teaspoonful of these products, more or less, depending on the size of the hives and the product used, with the entrance closed at once, would kill the bees quickly. Bees are extremely susceptible to hydrocyanic acid gas. This last summer I had two hives sitting on wood poles. A small brown ant established a colony in or under the poles. One day the ants swarmed out. They crawled all over the two hives and were entering the hives freely. I scattered a few teaspoonfuls of Cyanogas granules where the ants were emerging. This was at least six inches from the hive. The ants were promptly killed by countless numbers. Some bees were soon affected also. Other bees came to help them, and when I returned in a half hour I noted that perhaps a half pint of dead bees were scattered about. I observed that many bees had managed to crawl or fly a few feet away, and most of these recovered. **Some water on the cyanide soon made it harmless.** A better way to handle such an ant problem is to build cement bases for your hives. This I have already done.

A Comparison with Sulphur and Carbon Disulphide

The fumes of burning sulphur have long been recommended for fumigating for the waxmoth. This is the cheapest way to handle the situation, since this material costs less than calcium cyanide. There is, however, a real fire hazard in the use of sulphur fumes, while with calcium cyanide there is absolutely no danger of fire, as fire is in no way involved. The odor of sulphur dioxide is exceedingly objectionable, and when used in building fumigations the odor may persist for even a month. The fumes from calcium cyanide are objectionable also, but they dissipate from a building quickly upon airing out. Rarely can one detect an odor longer than a day or two. Sulphur fumes tarnish bright metal objects and may bleach fabrics. Calcium

cyanide, except Cyanogas, under certain peculiar conditions, neither tarnishes nor bleaches. Sulphur fumes are fairly strongly acid; hydrocyanic acid gas is one of the weakest acids known. Sulphur fumes are slightly inferior to the cyanides on penetration and their action is much slower than the latter.

The fumes from carbon bisulphide are highly explosive or inflammable, so there is a fire hazard in the use of this material. This gas is slightly more explosive than gasoline, but fire or heat is in no way involved in its use, so an explosion would be accidental. We rarely use carbon disulphate for fumigating rooms or buildings. It is hardly suitable for that use, since the gas is so much heavier than air; the upper part of the room or building may be untouched and leakage from the room is a problem. It is highly successful for fumigating honey, brood frames or other bee equipment. Such small amounts of material are needed for this work that a comparison of costs is difficult. In general it is a little more costly than the cyanides.

Neither the fumes from burning sulphur nor from carbon disulphide are regarded as poisonous to man, while hydrocyanic acid gas is highly poisonous to man. Herein is the chief objection to the latter. Some entomologists are very much afraid of it. The writer has fumigated many residences, a few flour mills and restaurants, using large quantities of both cyanides, and has never used a gas mask. A few times reddened eyes and a light headache resulted, but never anything more serious. A half dozen or more students have assisted in the work, and not one ever experienced any ill effects. We never take chances, however, and work rapidly in using the material. It is possible that there are some folks who, when told that these fumes were poisonous, would deliberately stand in a tight fumigating building and take a dozen full breaths, but they are surely few. The tendency is to try to escape breathing any of the fumes. Even mice, rats and the insects try to escape it. A sharp knife is a dangerous tool. Some persons may cut off a finger, a hand, or even cause their death by using one, yet no one declares against a sharp knife.

In the small quantities, apiculturists would use either of these calcium cyanides and with ordinary instructions regarding their use and dangers, there is really no more danger from their use than in the use of a sharp knife. The power of hydrocyanic acid gas appeals to many, since a powerful insecticide ordinarily offers greater hope of results than a weak one, even with increased dosage. At least, in its favor may be said that all the evidence at this writing indicates that it does not taint the honey nor the wax to a perceptible extent, nor render either dangerous for use.

The only published work known to the writer on the use of calcium cyanide in the apiary is the paper by C. L. Corkins, entitled, "New Chemical for Beekeepers." It was published in "Gleanings in Bee Culture," 1926, Vol. 54, pages 644-646. He lists four possible uses to the beekeeper: (1) For destroying diseased colonies; (2) for use in fumigating combs either in stacked supers or in a closed building; (3) for the destruction of wild bees in houses, trees or other cavities; (4) for the control of ants in the apiary. He found that honey fumigated with hydrocyanic acid gas in the usual manner was not affected and was perfectly safe for human consumption.

Taking Italian Bees to India

By Alice B. Munro

A NEW paragraph may be added to our natural histories when D. Spencer Hatch returns to his work with the Y. M. C. A. among the natives of South India with swarms of bees from Greece or Italy.

The species **apis mellifera**, famous since the days of Homer and Virgil for the sweetness and abundance of its honey, has already proved adaptable in such widely varying climates as those of New York State and the Philippine Island. Mr. Hatch hopes that by experimentation with several altitudes and different crops a way may be found to naturalize them, and that, by substituting them for **apis indica**, which is hardly more than half the size, the beekeeping industry may be indefinitely increased.

There is an unusual need for such industries in rural India. One meal a day, sometimes consisting only of gruel, is all that great numbers of inhabitants of the small villages may expect throughout their lives. A large percentage of them are in the grip of the money lenders, who charge from 25 to 300 per cent interest a year.

In the Cotton Belt of the Deccan, in the rice deltas along the East Coast, in other tracts where rainfall or lack of it makes continuous work on crops impossible, there is a long period of enforced leisure which intensifies the general poverty. It is for such times that the Y. M. C. A. secretaries have introduced "cottage industries" such as poultry-keeping, weaving, mat making, and beekeeping.

The small Indian bees are kept in old earthen pots high up in the trees. Once a year the beekeepers are accustomed to dig the honey out of the pots, breaking up the colony as they do so. If the queenbee is killed, the swarm never gets together again. If not, they are hardly reunited and at work before the plunder recommences.

Mr. Hatch and his associates are teaching beekeepers to transfer the bees gently from these pots or from bee trees into modern hives. By the one simple process of extracting the honey from the comb and replacing the comb in the hives to be filled again, they can almost double production. At the best, however, the Indian bee is capable of not over ten pounds of honey per colony a year, while the Italian bee can make a hundred pounds or more.

Beekeeping is a good source of income, since the price for honey in India, where a family of five manages to live on eight cents a day, is at least three times what it is in America. It is highly valued for its medicinal properties, and while sweets are very much needed in the Indian dietary, the supply of honey is so small at present that it is nearly all kept for medicine.

It is hoped that the Travancore State Department of Agriculture will share with the rural department of the Y. M. C. A. both the expense of the expedition and the experimentation with the bees which are imported.

Mr. Hatch plans to take with him from Italy or Greece from six to twelve swarms of bees in their hives. These will have to be given water every day; and when the ship stops for a day in any port, they will be allowed to stretch their wings in a flight which will bring them back unerringly to the hive at nightfall.

The ideal pasturage for bees in India would be a useful food crop which also bore honey-producing flowers. Mr. Hatch has already tried buckwheat and found that it grew and filled very well on poor land. On his return to India he plans to experiment further with new crops which will supplement the native honey-producing flowers and plants.

New York.

Gray Carniolans in Central Canada

By R. D. Nicholson

Having read from time to time articles in your valuable journal relative to the habits and peculiarities of the various races of bees, and being a Carniolan enthusiast, I would like to say a few words on their behalf.

There seems to be a general impression among beekeepers that the gray Carniolan is an inveterate swarmer. That has not been my experience. We kept Carniolans and Italians side by side for three years and could see very little difference

as to swarming. Some colonies of both races would swarm while others would not. I have had a Carniolan queen three years that has never swarmed. However, they will always build up and get to swarming strength first, due to rapid breeding under adverse conditions; but we would like to emphasize the fact, which seems to be not generally recognized, that Carniolans do respond to treatment and swarm control measures just as readily as Italians. You must select and breed from the best strain in any race for results.

Last spring we had twenty old colonies and secured ten packages from Texas, which arrived late in June. The old colonies averaged 212 pounds extracted honey and increased ten; the packages averaged 75 pounds surplus, in spite of the late date of arrival — in all 5,000 pounds and ample stores for winter. Beekeeping is just a sideline of our farming operations, and I feel quite sure our honey crop would have been considerably larger had we been able to give the bees more of our time during the busy harvest and threshing season, when the honeyflow here in the North is at its peak.

Apart from their ability to build up rapidly in the spring, due to their prolific queens, and their good honey-gathering qualities, another important reason for my being an enthusiast for the Carniolans is their extreme gentleness under all conditions. Some Italians also are gentle, but they vary greatly as to temper. You can work with Carniolans days on which it would almost be impossible to do anything with Italians. Something to be appreciated when you have only a limited amount of time to spend with bees and have to work with them whenever opportunity presents itself.

Carniolans give best results in a large hive. Ours are in nine-frame Dadants, 1½-inch spacing; I believe eleven-frame would be even better. We have at least five full-depth supers per colony; give plenty of ventilation and provide shade from the heat of the sun for at least part of the day. Observe ordinary good beekeeping rules and Carniolans will deliver the goods and swarms will be rare.

I sincerely wish there were more queen breeders specializing in Carniolan queens, as I am confident if this race were given the attention and selection that Italians have had, their merits would be more generally recognized in your northern states and throughout central Canada.

Manitoba.

Just Where Do You Want Me Stung

The above picture of a cheerful desperado was sent in by H. C. (Honey) Cook, of Omaha, Nebraska. The expression on the youngster's face suggests the title for this squib. He really seems to say just that. Note the unique hive, a bottle with entrance at the bottom. Such a hive is useful, too. Covered with a burlap to keep out light, the bees are contented and any time observations are desired the removal of the burlap opens the whole world inside to inquiring eyes.

The Big Brood Chamber in a Bad Season

By Rev. B. Wright.

The past season of 1927 was the worst on record in southern England. The New Forest B. K. A. abandoned their summer show for lack of anything to exhibit. Things were not quite so bad on Salisbury Plain, but cold and wet, singly or combined, produced a season which will long be remembered by beekeepers. Feeding was necessary all through the spring brood rearing, and the best flow occurred in the first week in August, a time when in a normal season the harvest is at an end.

The more experience I get of the seasons as they come around, good, bad and indifferent, the fonder I get of the big brood chamber. It certainly is the thing for a bad season, for my two best colonies, which gave me about 130 pounds surplus each, were on twelve-frame Modified Dadants, the surplus being stored in May and early June. But what is perhaps of more importance is the influence the commodious brood chamber has on swarming. Absence from home prevented me from giving much attention to the bees for a fortnight at the end of June and the beginning of July, a very anxious time from the swarming point of view. I had a few colonies on twelve British standard frames; they had not thriven owing to circumstances beyond my control, and did not seem likely to swarm. The rest had brood chambers of either twenty-four B. S. frames or twelve M. D.'s.

When I returned from my travels and resumed the even tenor of my way in the apiary, I realized that every one of the single chamber British standard brood nest colonies had swarmed; one had gone early in the season and all the others had followed its example during the latter part of my absence, while of the big brood chamber colonies only one swarmed the whole season through, a strong stock on twelve M. D.'s.

It seems that the more unfavorable the season, the more marked is

the superiority of the large brood chamber in the matter of non-swarming. Last season the neighboring beekeepers reported much trouble with swarms, and they, of course, all use the ten-frame B. S. brood box. Probably if I left my apiary unattended for a fortnight in a heavy flow, I should lose more than one swarm, even though all my colonies might have large brood chambers. But if the large brood chamber does not altogether prevent the swarm, the small brood chamber does seem to ensure it, even in such a poor honey yielding year as last year was, and, a fortiori, the swarm is still more certain in a good year.—From "The Bee World."

Fertilization of Red Clover

"Studies Concerning the Pollination, Fertilization and Breeding of Red Clover," by R. D. Williams, is the title of an interesting publication issued by the University College of Wales at Aberystwyth. An extended study is made of the subject, which will be of interest to every student of pollination. The following extracts are of interest:

As already shown, red clover seed production depends almost exclusively on the pollinating activities of about half a dozen species of humble bees. It is, therefore, a matter of considerable moment to the seed grower to discover whether the useful bees are sufficiently numerous in this country to deal effectively with all the clover crops grown for seeds. Red clover has, on the average, about 105 florets per flower head. As the result of a number of determinations, it was found that the average rate at which humble bees visit red clover flowers is about thirty visits per minute. Further, it has been estimated that an average stand of red clover has about thirty-five to forty heads per square foot in flower during the main pollination period—that is to say, during about fourteen days in mid-August. On this basis, an acre of red clover has about one hundred and sixty million florets actually in bloom during this fourteen-day period. To pollinate this enormous number of flowers, about 640 humble bees working continuously for ten hours a day would be necessary.

Contrary to expectations, on the basis of observations made by various investigators on the Continent and in America, the contribution made by honeybees towards the fertilization and seed production of red clover at Aberystwyth and in the seed growing centre in Montgomeryshire was practically negligible. These bees were only seen to visit red clover for a short period in 1921.

In the areas in which these observations were made, red clover was almost entirely pollinated by six species of humble bees. Of these, B. agrorum and B. hortorum were by far the most numerous and, consequently, the most important. It is estimated that at least 70 to 80 per cent of the total red clover seeds produced in these areas was due to the activities of these two species.

The optimum period of pollination—that is, the period during which the bees were most abundant on red clover—was the second to fourth week in August, when the workers were most numerous. During the early part of the summer, fertilization was almost entirely effected by queens, which were comparatively scarce.

A Prosperous Colony

The picture is of Harmon Stevens, one of the oldest beekeepers in the State of Wisconsin. The seven supers of honey were produced in 1927 in our home yard at Stockbridge. All seven were full to the brim and sealed from top to bottom bar. When extracted we had 400 pounds of fine white clover honey. In 1926 we introduced an albino queen into a new swarm. They wintered fine and about June a swarm of goldens came out and in some way went back into the albino hive by mistake. This happened while we were away to one of the outyards, and was not noticed until we were clipping queens. We found the goldens were gone and that our albinos were turning out to be goldens, the golden queen having killed the albino. But the hive was pretty full of albinos. That is the kind of bees that were in the hive that father is standing by in the picture. It is a ten-frame hive. Our average yield this last season was over 100 pounds from both ten- and eight-frame hives.

D. J. Stevens.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

TRANSFERRED BEES VS. PACKAGE

I had five box-hives with black bees given to me, which I wished to transfer to movable-frame hives and introduce Italian queens. Some beekeepers advised me not to try this method, because of the difficulty of introducing the Italian queen and also the risk of foulbrood. They advise me to buy package bees and leave the black bees in the box-hives till fall, then kill them and extract the wax and honey and sell it, which they say would more than pay for the Italian bees. My hives and equipment have cost me close to $40, and to buy the package bees would cost me $23. That would make my investment around $60. I would like to have your advice on this question.
MISSOURI.

Answer.—It is a little hard to decide whether it would be cheaper to transfer your black bees from the box-hives and requeen them or to buy new bees in packages. The fact is, there is a great deal to be learned in transferring a colony of bees, and most beginners like to take a try at it, even though it doesn't pay very well. Of course, you would want to make sure there was no foulbrood in the colony if you transfer, because that would result in the loss of your new combs after they were drawn. Then there is a good deal of trouble in introducing new queens to some strains of black bees. If you supplied your box-hives with plenty of supers, it is quite possible that they would store enough honey during the summer to pay for your package bees all right, and you could then extract the honey in the fall and melt up the old combs in the boxes. However, we suggest that you try transferring one or two of the colonies when the honeyflow comes on, for the sake of getting the experience. A booklet entitled "Every Step in Transferring Bees" may give you some desirable information. The way I like to transfer bees best, however, is simply to turn the old box-hive upside down when the honeyflow begins and set the new hive with sheets of foundation on top, making sure that all cracks are tight. Remove as many of the old combs as possible from the box below in order that the queen will go upstairs when the new combs are built and establish her brood nest there herself.

CELLAR FOR BEES

Have just been reading in your Journal of a bee cellar under a honey house. I am going to build a bee cellar this summer, and have a side hill to build on and would like to get some advice from you. If I dug a basement in the side hill and built the honey house over it, could I keep the bees in the basement without fire above or below, and would I have to put some insulation of some kind below the floor?
NORTH DAKOTA.

Answer.—The only way to build a basement for wintering bees, in a hillside, is to build it far enough and deep enough that it will not freeze inside the basement. Probably in your section it would have to be under three feet of soil, with double wall in front and some insulating material between the outside wall and the inside one. I would think that a six-foot chamber between the two doors would be sufficient if filled with shavings or forest leaves.

Perhaps it would be necessary to use a lining between the joists of the floor. When we built a bee cellar, we placed it under our living rooms in our house and we put a lining between the joists, filled with sawdust, but in our case it was to keep out the heat from the upper apartment.

I have seen several basements in cold localities. One of them, in Minnesota, right behind the apiary, and the door of it was on a level with the apiary, so that it was very easy to wheel in the hives of bees on a shallow truck. After closing the inner door, the beekeeper placed some corn fodder between the two doors. It was not difficult to get through this to examine the thermometer placed just inside the inside door. A couple of two-inch pipes, one at the bottom, the other at the top, furnished sufficient ventilation. I am not acquainted with the winter temperatures of your section, but it ought not to be difficult to build a cellar in which it would not freeze. The bees furnish some additional heat, and a hundred colonies would probably easily keep the temperature around 45 degrees.

MICE IN HIVES

My hives were well provided with honey to carry them over, together with a super above well filled with leaves and some woolens, and a packing case over each hive well filled with leaves.

While this was my first experience in putting up bees for the winter, I figured it was some classy job and expected that this spring I would find the greater part of them a well satisfied bunch. About a week ago I took a look at the hives, and as it was a day at least some of them would be out for a flight, and not seeing any bees flying around, I started an investigation. In the first hive in the super I came across a nice mouse nest; not a bee, and the combs on one side more or less destroyed, and the other hive in the same condition. In the first hive I killed one mouse, and in the other, five field mice. The mice were half the size of rats. Evidently they got hold of some literature relative to the value of honey as a food product.

I am wondering if you have had any such experience, or do you place a wire netting at the opening? What became of the bees? If in the debris, they had carefully chewed up each bee.
MICHIGAN.

Answer.—Mice are very frequently responsible for the loss of bees during the winter months, and I have long ago learned from costly experience to reduce the entrances to a point where it is impossible for the mice to get in. This can be done either by placing a wire screen over the entrance or by using an entrance block with a long, narrow slot to enable the bees to reach the open air. Apparently, the mice eat a considerable number of the bees and others are probably disturbed to the point where they fly out during cold weather and are unable to return.

WINDBREAK FOR APIARY

We are planning on planting some kind of a hedge for a windbreak around our apiary, and are puzzled as to what would be best to plant, and thought you might be able to help us decide.

Thanking you in advance for any information you can give us,
ILLINOIS.

Answer.—There are a number of things which will make a very good hedge and windbreak around an apiary. I have seen apiaries surrounded with a black locust hedge, which makes a very satisfactory windbreak within a very short time. Plant the young locusts rather close together and you will have a windbreak in a surprisingly short time. However, in a few years, they will get tall and straggly and will no longer be quite so satisfactory. My suggestion would be that you plant a double windbreak two or three rods apart, and that behind the locust hedge you use white pine trees. They will grow much more slowly, but within a few years they will make a beautiful hedge which is almost wind-proof. Plant the pines about eight feet apart and they will make a solid wall within a few years, the limbs interlacing clear to the ground.

I think a windbreak around an apiary is about the best investment a beekeeper can make, as it results in a great saving in both bees and stores during the brood rearing season of early spring, as well as making for better winter protection.

FULL SUPERS

Please tell how we can tell when the super is full. I am an inexperienced hand. Also, why do bees cluster in front of hive they have swarmed from? Is that their custom?
IOWA.

Answer.—In order to care for your bees properly, you should examine the inside of the hive, during the crop, about once a week, and find out what progress they are making. Otherwise, you are in the dark about their condition.

Bees cluster on the outside of the hive when they are short of room and also when they are in need of more ventilation or are in too hot a situation. We never let our bees cluster outside, except when the season is entirely over and they are necessarily remaining more or less idle. You must bear in mind that, when the hive is in the sun, in June, July and August, it gets so warm that a piece of comb will melt on the top of it. Comb does not melt until the heat is up above 140 degrees. So that is a good way to recognize that the hives need shade. Besides, the bees may need room for ventilation, for they have to send pure air up into and through the hive and out again. If you do not give them more room for ventilation than they have in winter, they are likely to suffer. The bees should be made as comfortable in their hives as possible. They will then produce the maximum of honey.

SAINFOIN

I raised esparset (sainfoin) in Switzerland about thirty years ago and know what it is and what it will do over there. I have not farmed much in America, but for the last three years had quite a number of bees. I believe that the conditions a little north of here would be just right for this grass and would like to try it out. If you could help me out in getting hold of, if only a few pounds, of seed soon, I would be very much obliged.
KANSAS.

Answer.—You can get seed of the sainfoin from the John A. Salzer Seed Company, La Crosse, Wisconsin. We have letters from correspondents who say that it is successfully grown in the high altitudes of Colorado, but we are rather doubtful about its succeeding in Kansas.

PACKAGE BEES

How far can package bees or queens be sent, or what length of time can there be consumed in transporting bees successfully? I will be glad if you will advise by mail. Stamp inclosed.
KANSAS.

Answer.—It is a little hard to tell how far package bees or queens can be shipped safely. They are very commonly sent from Alabama, Texas and other southern states into western and northern Canada, and ar-

rive in good condition. Apparently, bees can be shipped in packages very safely within limits of five to seven days' delivery, and there have been a number of cases where they have gone for a longer time. Queens have been sent for very great distances, as it is not uncommon for them to be sent from America to Europe, or from Europe to this country, quite successfully. Apparently, the queens can be confined in the small cages for a period of two weeks or more without danger. Of course, it is necessary that a sufficient supply of food accompany the bees to last for the entire length of their journey.

EXTRACTING HONEY

1. To heat honey in extracting frames to proper temperature for extracting, will it be a good plan to pile up supers in small room and heat by stove or otherwise?
2. Will it be all right to run honey direct from extractor to can, or is it better to run honey into tank and then draw off into cans?
3. If honey is run direct from extractor into can, what is the best strainer to use?

VIRGINIA.

Answers.—1. We prefer to extract the honey as soon as it is removed from the hives. Then it does not need heating. But if you let it get cold, then it is necessary to heat the room to about 85 or 90 degrees, for a half day previous to extracting.

2. We never run the honey from the extractor into the cans, whether large or small cans. We always let it rest for a few days in a tank. Then the light impurities come to the top and may be skimmed off. There are very few, if any, impurities heavier than the honey, unless it is grit, which ought not to be there if the extracting is done in a clean way.

3. Strainers are not very satisfactory, unless the honey is very warm. They generally get clogged up. A rather fine strainer would be needed.

QUEEN CAGE CANDY

Will you kindly favor us with copy of late recipe for making queen cage candy, using both the invert sugar method and also a copy of recipe using boiled honey?

ALABAMA.

Answer.—Invert sugar made by the German method, is made as follows: Cane sugar, 25 pounds; tartaric acid, ½ ounce; water, 1 gallon. Bring to a boil, but make sure that it will not burn. Keep at the boiling point for a half hour.

Now, to make queen cage candy, take either the invert sugar or some honey and heat it to about 140 degrees, then let it cool till just warm. Then stir in pulverized sugar, a little at a time, stirring it all the time; keep on stirring it and handling it like dough until it will take no more. It will take about two pounds of honey to mix with five pounds of sugar to make a good mixture. If there is any doubt about the healthfulness of the honey, it should be well heated first, by boiling for a half hour in a closed vessel. Better still, use honey of undoubted healthfulness.

The Hive and Honeybee in Italian

The first edition in Italian of the Langstroth - Dadant book, "L'Ape E L'arnia," is now out. This work is now published in five languages, others to appear soon. The Italian edition is published in stiff paper covers. The price, postpaid, will be $2.00. The book contains 454 pages.

Hutzelman's Solution for American Foulbrood

Use Alcohol—Formalin to be safe

Ask your dealer or write to

J. C. HUTZELMAN, Glendale, Ohio

Display your Honey Perfectly

Dependable Service

On Standard Sizes

Our fluted honey jars are made as per specifications of Standardization Committee of the American Honey Producers' League

Distributed by

Dadant & Sons, Hamilton, Illinois

and

G. B. Lewis Co., Watertown, Wis.

G. B. LEWIS CO.,
1921 E. Fourth St., Sioux City, Iowa

G. B. LEWIS CO.,
10 Tivoli St., Albany, N. Y.

G. B. LEWIS CO.,
1304 Main St., Lynchburg, Va.

G. B. LEWIS CO.,
318 E. Broad St., Texarkana, Ark.

Hart Glass Mfg. Company

Dunkirk, Indiana

QUEENS! QUEENS!!

Palmetto Italian Queens have a record of 400 sections of comb honey per colony. The Queens are right and the prices are right. Booking June, July and August orders at following prices: One Queen 50c; half dozen, $2.80; dozen, $5.40; thirteen to 100 40c each.

C. G. ELLISON, Belton, S. C.

Choose Labels Wisely

You Can't Go Wrong with A-B-J Labels

They sell honey and are priced right.
Send for complete catalog

AMERICAN BEE JOURNAL
HAMILTON, ILL.

CARNIOLANS

are very gentle, very prolific at all times, build very white combs, are little inclined to rob, rarely affected with European foulbrood, and are most excellent workers. Average surplus from producing colonies during 1927 was 180 pounds extracted. If provided with plenty of stores and well protected, Carniolans build up very rapidly during the changing weather of the spring months,—a decided advantage in our northern states.

We have been breeding Carniolans for the past 21 years. Several breeders imported each year—Jan Strgar and M. Ambrozic stock. We have supplied queens to several Agricultural Colleges and Experiment Stations and to the Japanese Government for breeding purposes. We probably have the finest Carniolans in the United States. Ask for our free paper, "MERITS OF THE CARNIOLAN BEE."

Untested queens, one	$1.35
Untested queens, six	6.60
Untested queens, dozen	12.00
Tested queens, each	2.25
Line bred breeding queen (reared 1927)	10.00

ALBERT G. HANN
Glen Gardner, New Jersey

TRAVELERS select the Great Northern for its wonderful location in Chicago's "loop". They return because the large comfortable rooms, homelike environment, attentive service, excellent food and moderate charges make it an ideal hotel.

400 Newly Furnished Rooms $2.50 a day and up — Sample Rooms $4.00, $5.00, $6.00, $7.00 and $8.00.

New Garage One-half Block
Dearborn St. from Jackson to Quincy

Walter Craighead, Mgr.

Spray Poisons and Bees

By Philip Bishop

I was extremely interested in a recent article appearing in your Journal, entitled "Death of Bees From Spray Poisoning Not Yet Sufficiently Proven." Unhappily it has been my privilege to have kept bees, extending over a period of nine years, in a locality which has afforded me experience enough to speak rather conclusively on this subject.

I live in the Annapolis Valley, Novia Scotia, which is fairly well-known as an apple-growing district; and perhaps better known as the Land of Evangeline. To the beekeeper, this section of country presents two very interesting aspects. First, mile after mile along the uplands, of almost unbroken apple orchards. Second, lying along these upland orchards, the dyked marshlands which, with good farming methods, produce immense crops of alsike clover hay. There is no doubt that it was these broad, fertile marshlands, needing only to be dyked against the daily tides, that first attracted the French to this locality. And were it not for the poisons that orchardists apply to their trees for the control of insect pests, this would certainly be a beekeeper's paradise.

Very few articles one sees relative to bees having been poisoned in fruit-growing sections, make any distinction between liquid-spraying, and dusting. I have wondered at this. Possibly it is because dusting isn't carried on extensively enough in sections outside this Valley to make it seem worth while making any distinction between the two. Generally it seems to me that liquid spraying is implied. However, so far as actual effect on the bees is concerned, I can assure anyone there is a vast difference between them. As a matter of fact, I do not fear liquid spraying very greatly. Unless it be applied in the bloom, or falls on the blossoms of some cover crop, it cannot do any damage. Even then, it becomes hardened and caked in a few hours, and probably would not penetrate to the nectaries of the blossoms to the extent that the dust does. Still, serious damage will certainly result to the bees thru the wrong use of liquid spray.

But with the dust, the problems of applying it so that it will not harm the bees are very much increased, and almost impossible of solution; unless perhaps, some satisfactory repellent could be devised. It drifts far from the orchard in which it is used, infesting any number or variety of blossoms that may be in the vicinity; and there is no doubt that the bees gather it in the pollen as well as in the nectar. I also sometimes wonder if the bees do not get it from the grass where one often sees them in the morning gathering moisture in the shape of dew.

If anyone asks me how I know my bees have been poisoned by arsenic, and it is not something else that is the matter with them, I can tell them this. First, I have on my files a letter dated July 8, 1922, from the Bureau of Chemistry, Washington, D. C., reporting on a sample of bees I had sent in, as follows:

Arsenic in milligrams per bee	0.0005
Arsenic in parts per million	15

It also adds: "This is apparently more than sufficient amount of arsenic per bee to account for the death of the bees." Another sample of bees that I sent to our own department at Ottawa reports as finding ten times the amount of arsenic present necessay to cause the death of the bees. The evidence here obtained is certainly much more conclusive than in the report of samples given by Mr. Milum.

The second, and best reason why I know it is the poison that causes the destruction of my bees, and others in this locality, is that by moving the bees away during the dusting and spraying season, I can entirely overcome the trouble. Altho it means a lot of extra work, I now practice this method. Other beekeepers that do not move, continue to have the same trouble; and if I leave a few of my colonies around here, they too will get it.

Symptoms of poisoned bees, so far as I have seen, are quite similar to those given by Mr. Milum, and it seems to me quite possible that that might have been the trouble in the instances he cites. I have often noticed the poison symptoms showing when reasons why they should appear were mystifyingly slight; as perhaps not a fruit-grower within a mile or so had as yet applied any dust, and plenty of orchard, and other pasturage, near at hand. It is also quite common to find one colony affected much worse than another; though of course when the condition is at all bad, all colonies will be affected. I have seen many colonies reduced to a mere handful of bees. One noticable thing is that the queen will always survive to the last.

The condition of sick bees, crawling around on the grass near the hives is always best seen in the morning, just as the bees are getting nicely to work. Apparently there

(Continued on page 306)

SERVICE FROM

CHICAGO

Let yourself be

PLEASED

We can
We will
Give you

WHAT YOU WANT
WHEN YOU WANT IT

CATALOG FREE

A. I. Root Co., of Chicago
224 W. Huron Street, CHICAGO, ILL.

Forehand's Bees and Queens for 1928

Queens, to give the service you have right to expect, must be strong and healthy and of good honey producing stock.

This cannot be accomplished by guessing; it takes years of research and scientifical breeding by experienced men.

Forehand's Queens

are reared right. A trial will convince you

	1-12	12-25	25-99
Untested	$1.00	$ .85	$ .80
Sel. Unt.	1.25	1.00	.90
Tested	2.00	1.75	

Combless packages and nuclei f. o. b. my station:

1 lb. bees and queen, $2.75; 10 or more, $2.50
2 lbs. bees and queen, $3.75; 10 or more, $3.50
3 lbs. bees and queen, $4.75; 10 or more, $4.50
2-frame nuclei with queen, $4.00; 10 or more, $3.75
3-frame nuclei with queen, $5.00; 10 or more, $4.75

Write for circular and prices on larger lots

N. FOREHAND
Gonzalez, Fla.

Prompt Shipments and a More Personal Service from Council Bluffs

Root QUALITY BEE SUPPLIES

The A. I. Root Co. of Iowa
Council Bluffs, Iowa

You are within the Fourth Postal Zone of Lewis anywhere East of the Rocky Mountains

LEWIS-DADANT DEALERS

Where You Can Buy Lewis Beeware and Dadant's Foundation.
Dealers in Heavy Type Carry Large Stocks.

DEALERS & BEEKEEPERS

Beekeepers save thousands of dollars in freight each year by purchasing Lewis Beeware and Dadant's Foundation near at hand, also getting quicker service and fewer shipping losses.

Here is a group of dealers with whom we are proud to be associated, and we give them and their customers what no other manufacturers can duplicate.

G. B. LEWIS COMPANY.
DADANT & SONS.

ALABAMA

L. B. Coley, Alexander City.
V. R. Thagard, Greenville.

ARIZONA

ROSWELL SEED CO., ROSWELL, N. M.

ARKANSAS

PARKER HDWE. CO., LITTLE ROCK.
G. B. LEWIS CO., TEXARKANA.
Edgar Bros., Fordyce.
C. V. Reeves, Green Forest.
C. E. Webb, Jonesboro.
H. W. Richards, El Dorado.
James Johnson, Pocahontas.
F. D. Faubus, Delaney.
Epopee Apiaries, Gilmore.
C. D. Sanders, Van Buren.
W. C. Vandenburg, Fauke.
Cecil Trevathan, Gilmore.

COLORADO

G. JCT. FRUIT G. ASSN., GRAND JUNCTION.
COLO. HONEY PROD. ASSN., DENVER.
FARMERS' SUPPLY CO., DURANGO.
G. D. TAYLOR, DOLORES.
BERT W. HOPPER, ROCKY FORD.

CONNECTICUT

Eugene Converse, Bantam.
Allen Latham, Norwichtown.

GEORGIA

J. O. Fussell, Dawson.
W. A. Edge, Julia.
J. G. Puett, Moultrie.
E. F. Bussey & Co., Enigma.
L. L. FEREBEE, SAVANNAH.
W. H. Smith, Hamilton.
A. McElveen, Stilson.
B. B. Kirkland Seed Company, Augusta.

FLORIDA

Crenshaw-McMichael Seed Co., Tampa.
L. L. FEREBEE, SAVANNAH, GEORGIA.

ILLINOIS

DADANT & SONS, HAMILTON.
I. C. EVANS DECATUR.
EDW. M. KLEIN, WAUKEGAN.
J. N. Koritz, Buckley.
MIKE LARSON & SON, GARDNER.
UPSON & BURROWS, ROCKFORD.
G. H. Schultz, Reddick.
WALTON BROS., FAIRBURY.
W. L. Ritter, Genoa.
Roy Roselieb, Prophetstown.
Ora Jacobs, Downers Grove.
Kaneville Grain Co., Elburn.
Bement Lumber Co., Bement.
A. Coppin, Wenona.
BEN H. FISCHER, ROANOKE.
W. W. Moeser, Belleville.
CLARK-MARTIN-HAWKINS COMPANY, HARRISBURG.
ELMER KOMMER, WOODHULL.
GEO. RASMUSSEN, URBANA.
A. E. Crowe & Son, Gibson City.
Peoria Seed and Bird Store, Peoria.
Danville Baby Chick Co., Danville.
Ben Potter, Mt. Pulaski.
O. S. Biggs, San Jose.
Jos. F. Eyka, 252 Illinois Ave., Elgin.

INDIANA

THE BROCK STORE, DECATUR.
ADAM SNIDER & CO., TERRE HAUTE.
C. M. SCOTT CO., INDIANAPOLIS.
PICKETT HDW. CO., GREENFIELD.
Flanegin Hardware Co., Logansport.
Auburn Hdw. Co., Auburn.
Ray P. Miles, Liberty.
VICKERY BROS., EVANSVILLE.
FRED REULE, INC., LAFAYETTE.
Kemper Bros., Greentown.
B. R. Noll, Ft. Wayne.
A. L. Lindley, Union City.
Fred Treer, Columbia City.
J. B. Welty, Berne.
J. F. Michael, Winchester.
Jos. Nafziger, Goodland, Rt. 1.
Hartman & Dotterer, Bluffton.

IOWA

G. B. LEWIS CO., 1921 E. FOURTH ST., SIOUX CITY.
BERT A. BROWN, BOX 421, DES MOINES.
HAMILTON SEED CO., CEDAR RAPIDS.
J. W. Bittenbender, Knoxville.
G. A. OHMERT & SON DUBUQUE.
H. J. Pfiffner, Emmetsburg.
BRUNS SEED CO., 318 W. SECOND ST., DAVENPORT.
L. A. Michaelsen, Holstein.
HARRY A. PEASE, SHENANDOAH.
D. L. Ginger, Langdon.
H. C. Jones, Marathon.
C. L. Pinney, Le Mars.
Loos Seed Co., Oskaloosa.
Gerald Linn, East Pleasant Plain.
Waterloo Hardware Co., Waterloo.
J. F. Van Syoc, Mt. Pleasant.
Ralph Oldham, Soldier.
W. F. Ford, Guthrie Center.
O. B. Rogers, Newell.
R. C. Wallace, Rock Rapids.
W. A. Chipman, Burt.
J. A. Bliss, Mt. Ayr.
Ueker & Miller, Grafton.
R. E. Radebaugh, Rippey.
Roy Littlefield, Exira.
E. M. Cole, Audubon.
B. F. Shumway, Reinbeck.
Albert Sprung, Riceville.
G. C. Rubis, Spencer.
J. C. Zimmer, Granite.
W. H. Hogendorn, Colfax.
W. M. Peacock, Mapleton.

KANSAS

KENNEDY & SONS, LAWRENCE (DOUGLAS CO.).
COON HARDWARE, PARSONS.
B. F. Ogg, Ottawa.
F. H. Budden, Manhattan.
Meador Groc. Co., Larned.
CHARLES KIRBY, NICKERSON.
E. R. Fooshee, Piedmont.
EFFIE M. GRAY, WICHITA.
E. O. Farrar, Abilene.
W. M. Stranahan, Pratt.
H. W. Smith, Junction City.
Trusler Hdwe., Eskridge.
C. B. Stephenson, Clements.
Robbins Ranch, Belvidere.
L. A. Howland, Iola.

KENTUCKY

YOPP SEED CO., PADUCAH.
Benton Smith & Co., Canada.
R. J. Colliver, Moorefield.

LOUISIANA

Monroe Seed Co., Monroe.
G. H. SEXTON, DES GLAISE.
John St. Romain, Marksville.
C. S. Duncan, Mangham.
B. Olinde, New Roads.
Schwing Lumber Co., Plaquemine.

MASSACHUSETTS

F. H. Sanborn, Chicopee (Hampden Co.).
F. C. Howard, Stoneham (Middlesex Co.).
I. RAWSON, BOX 176, PITTSFIELD.
J. B. PERKINS, 22 CHURCHILL AVE., CAMPELLO.
W. C. Nelson, 35 King St., Holyoke.
C. N. Ellis, Westwood.
E. R. Phillips, South Derefield.

MAINE

R. B. Dunning, Bangor.

MARYLAND and D. C.

L. J. CARTER, 336 M. ST. S. W., WASHINGTON, D. C.
R. L. Beckley, Williamsport, Maryland.

MICHIGAN

A. G. WOODMAN CO., GRAND RAPIDS.

MINNESOTA

STANDARD LUMBER CO., WINONA.
STANDARD LUMBER CO., GRACEVILLE.
STANDARD LUMBER CO., BRAINERD.
J. A. Snyder, Worthington.
Hove & Overboe, Audubon.
B. I. EVANS, WINDOM.
Swanstrom & Newland, Lake Park.
Sulerud & Lovaness, Halstad.
John Rumerick, Mahnomen.
Peterson-Biddick Co., Crookston.
Walter Orange, Ruthton.
Larson Hdwe. Co., Marshall.

WHERE YOU CAN PURCHASE LEWIS

You are within the Fourth Postal Zone of Lewis anywhere East of the Rocky Mountains

MISSISSIPPI

The Smith Co., Jackson.
James Boys' Apiaries, Sumner.
J. M. Gilmore, Prairie.
T. P. Howard, Lake Cormorant.
Vicksburg Seed Co., Vicksburg.

MISSOURI

CLAY T. DAVIS, CAMERON.
Ray White, Newtonia.
C. E. Linville, Maitland.
Dr. E. L. Crowson, Pickering.
Combs Bros., Worth.
A. W. Gale, Chillicothe.
H. D. Skinner, Braymer.
L. A. Schott, Benton.
I. E. Long, Marceline.
H. E. Bartz, Keytesville.
John Rodeman, Jefferson City.
J. Patton Ryals, Huntsville.
E. G. Kern, Milan.
J. B. McNeely Granby.
Wiley Hilton, Jenkins.
Neosho Seed Company, Neosho.

MONTANA

B. F. SMITH, JR., FROMBERG.

NEBRASKA

M. B. Cook, Arlington.
GUNN SEED CO., LINCOLN.
Newton Hdwe. Co., Orchard.
KEARNEY HDWE. CO., KEARNEY.
Boyd Hdwe. Co., Columbus.
Kregel Windmill Co., Nebraska City.
E. Kennedy Co., St. Edward.
Dr. W. E. Kendle, Syracuse.
Platte Valley Seed Co., Grand Island.

NEW HAMPSHIRE

P. N. TOWNSEND, LEBANON (GRAFTON COUNTY).

NEW JERSEY

J. F. GARRETSON, BOUND BROOK.

NEW MEXICO

ROSWELL SEED CO., ROSWELL.

NEW YORK

G. B. LEWIS CO., BOX 825, ALBANY.
H. L. CASE, CANANDAIGUA (ONTARIO COUNTY).
C. W. Wilson, Canastota (Madison Co.).
Charles Stewart, Johnstown (Fulton Co.).
C. M. WILSON, 1120 COLLEGE AVE., ELMIRA.
Thomas Coverdale, Leicester.
A. R. SIMMONS, LIVINGSTON (COLUMBIA CO.)
H. J. GREULICK, SCOTIA (SCHENECTADY CO.).
A. J. Wilson, Hammond (St. Lawrence Co.).
C. B. Clark, Cattaraugas.
A. R. Harvey, Mt. Morris.
F. B. Loomis, Rushville.
Reynolds Elevator Co., Poughkeepsie.
J. B. & Chas. Merwin, Prattsville.
Harvey Seed Co., 65 Ellicott St., Buffalo.
Stauble Bros., Monroe.
S. Foote, 1007 S. Salina St., Syracuse.
A. P. Kilmalis, Hoosick Falls.
M. B. Aber, Hammondsport.
N. L. Stevens, Venice Center.
L. M. Deming, Edmeston.

NORTH CAROLINA

Hornaday Seed Co., Greensboro.
JOB. P. WYATT & SONS CO., RALEIGH.
H. P. Butler, Mt. Olive.
L. W. Hawks, Round Peak.
D. E. MURRAY, SYLVA.
J. M. Smith, Lincolnton.
M. F. Brown, Gap.
H. H. Mashburn, Franklin.
Mocksville Hdwe. Co., Mocksville.
C. G. Coggins, Speedwell.
W. C. King, Union Ridge.
J. M. Ellis, Winston-Salem.

NORTH DAKOTA

FARGO SEED HOUSE, FARGO.
Albert Larson & Co., Cooperstown.
H. H. Hirschy, Lisbon.
C. C. Washburn, Edgeley.
Holthusen Bros., Wahpeton.
W. J. Hoover, Grafton.
Slawson Mercantile Co., Northwood.
Selmer Erfjord, Buxton.
C. N. Swanson, Larimore.
Rowe & Knutson, Hamilton.
W. F. Boylan, Carrington.

OHIO

J. E. Engelken, Greenville (Darke Co.).
Wm. Poos, No. Barron St., Eaton.
Fred J. Fries, Hamilton.
Rowand & Gabriel, West Liberty.
Earl Alexander, New Paris.
John Gerken, Napoleon.
J. H. Pobst, Ashville.

OKLAHOMA

HORN SEED CO., OKLAHOMA CITY.
Muskogee Seed House, Muskogee.
Brown's Hardware Co., Elk City.
Washita Mercantile Co., Tishomingo.
Idabel Feed Co., Idabel.

PENNSYLVANIA

FLOYD SANDT, EASTON.
P. J. Cover & Son, Meyersdale.
Dr. W. A. Lewis, Doylestown.
W. C. Long, Millville.
R. W. Coyer, Slippery Rock.
D. B. Hill, Jamestown.
C. M. Barnes, Hanover.
E. E. Manges, Buffalo Mills.
Anderson Hdwe. Co., New Bethlehem.
West Apollo Milling Co., Apollo.
G. W. Bell, Bells Landing.
Dr. W. A. Lewis, Doylestown.

RHODE ISLAND

C. H. Hill, Providence.

SOUTH CAROLINA

MARION B. LEACH, GREENVILLE.
B. B. KIRKLAND SEED CO., COLUMBIA.
Holmes Seed Co., Spartanburg.
ANDERSON SEED & FEED CO., ANDERSON.
Westminster Hdwe. Co., Westminster.
Holcombe Seed Co., Greenville.
Chesterfield Drug Co., Chesterfield.

SOUTH DAKOTA

Hayes-Lucas Lumber Co., Madison.
LOTHROP'S NURSERY, ABERDEEN.
Dakota Honey Co., Scotland.
N. M. Bratton, Merc. Co., Newell.
M. W. Thompson, Toronto.
E. I. Underwood, Willow Lake.
Gunderson Hardware Co., Vermillion.
H. C. Schloe, Ortley.
R. E. HOFFMAN, HURON.
A. F. Cunningham, Armour.
W. S. Scott, Monroe.
W. R. Hauser, Canton.
E. W. Fox, Fruitdale.
W. Dehaan, Geddes.

TENNESSEE

D. R. MAYO, 419 WALL AV., KNOXVILLE
Parsons Hdwe. Co., Parsons.
Harris Mercantile Co., Jackson.
Guthrie, Bradley & Jones, Sweetwater.

TEXAS

G. B. LEWIS CO., 318 E. BROAD ST., TEXARKANA, ARK.
O. B. Calvin, Ferris.
Rose of Sharon Ranch, Angleton.
HINKLE LUMBER CO., PARIS.
A. W. Bulay, Livingston.
J. L. Breeding, Kerens.
MARATHON HONEY CO., MARATHON.
Valley Bee and Honey Co., Weslaco.
W. H. Boothe & Co., Gonzales.
D. H. Smith, Mineral Wells.
A. M. Hunt, Goldthwaite.
T. H. Harrel, Dublin.
N. A. Palmer, Comanche.
Geo. Clarke Seed Co., Waco.
Stahmann Farms, 209 S. Main, Fort Worth
A. A. Hughes, Hillsboro.

VERMONT

W. H. & W. S. Bristol, Vergennes.
Thompson & Co., Middlebury.
R. G. Coombs, Brattleboro.

VIRGINIA

G. B. LEWIS CO., 1304 MAIN STREET, LYNCHBURG.
Wetsel Seed Co., Harrisonburg.
Diggs & Beadles, Richmond.
Virginia Apiaries, Rocky Mount.
W. Grossman & Sons, Petersburg.
J. T. Brauer, Fredericksburg.
Danville Hdwe. Co., Danville.
Rockbridge Hdwe. Co., Lexington.
Dungannon Hdwe. Co., Dungannon.
J. W. Eubank Furn. Co., Roanoke.
Geo. Harrison, Jr., Bluemont.
B. F. Martin, Critz.
M. W. Hamilton, 8 Tams St., Staunton.

WEST VIRGINIA

Gwyn Bros., Fairmont.
Shenandoah Valley Bee and Dairy Co., R. F. D. No. 2, Martinsburg.
Lee & Lee, Ronceverte.
Abraham Shriver, Wadestown.

WISCONSIN

SCHLAFER HDWE. CO., APPLETON.
W. T. Sherman, Elkhorn.
Central Wisconsin Seed Co., Waupaca.
R. C. Burnham, Richland Center.
W. S. HAYTER, WAUKESHA.
Ben Bittner, Mt. Calvary.
W. R. Hinrichs, Verona.
KUNDERT BROS., MONROE.
Wm. Gerrits Hdwe. Co., Waupun.
Mrs. Martha White, Pewaukee.
H. W. Knight, Dalton.
N. C. Miller & Son, Dodgeville.
Taft Hardware Co., Whitewater.
Emil Hince, Portage.
Geo. D. Miller, Evansville.
W. H. Hanesworth, Stoddard.
Koch & Bartholf, Palmyra.
Michael Weiss, Allenton.
O. J. Weisensel, Sun Prairie.

WYOMING

Colo. Honey Prod. Ass'n, Denver, Colo.
B. F. Smith, Jr., Fromberg, Mont.

BEE WARE

HARDY NORTHERN QUEENS

THREE BANDED ITALIANS ONLY

Daughters of first prize winner Michigan State Fair in 1927

Prices to July 15

Untested, $1.25 each; ten or more, $1.10.

Tested, $2.50 each.

PONTIAC APIARIES

Auburn Heights, Mich.

SPEED PLUS QUALITY

FOR MISSOURI BEEKEEPERS

In the rush season goods are wanted at once. Over 40 years experience in the supply business enables us to give prompt service. Majority of orders shipped same day as received. Service coupled with Root quality goods makes a combination hard to beat. Write for catalog. Beeswax wanted.

J. NEBEL & SON, SUPPLY CO.

Montgomery County **High Hill, Missouri**

GET RUNNING'S QUEENS AND GET HONEY

THEY SATISFY!

The kind we use in our extensive Michigan Apiaries, where we produced 92 TONS of honey last season.

Choice Untested Italian Queens 75c each

Tested, 50c each extra

Write for prices in large quantities. All queens sent from Sumterville, Ala. Address for **QUICK** service,

DAVID RUNNING

Sumterville, Alabama

Orders - Inquiries

60 pages Send for FREE Copy

Can be Secured by MAIL

POLK'S REFERENCE BOOK and Mailing List Catalog

Gives counts and prices on over 8,000 different lines of business. No matter what your business, in this book you will find the number of your prospective customers listed. Valuable information is also given as to how you can use the mails to secure orders and inquiries for your products or services.

Write for Your **FREE** Copy

R. L. POLK & CO., Detroit, Mich.

Largest City Directory Publishers in the World
Mailing List Compilers—Business Statistics
Producers of Direct Mail Advertising

(Continued from page 302)

are no old field bees among the sick—practically all showing very plainly the "bloom of youth." The fact leads me to think that perhaps the field bees do not suffer nearly so much as the nurse bees that are preparing the food for the young larvae. In my experience, however, it is the brood in the early larval stage that suffers most of all. Instead of brood combs filled with sheets of larvae, literally floating in the abundance of their milky food, which sight should normally delight the eye of the beekeeper in the fruit-bloom period, there is seen nothing but a desert-waste of cells with their contents all scorched and dried up. A discouraging sight to say the least.

Poison effects will continue to show for several weeks after the last poison was obtained, but in the later stages show only in a few sick bees crawling around on the grass near the hives. Apparently, by this time the brood has regained its health, but probably there are still a few larvae, in the early feeding stage, getting it.

The problem of beekeepers in such fruit-growing sections as this is rather difficult to solve. Legislation is no good unless the majority of the orchardists are behind it; and education isn't much better unless the fruit-growers have first learned from bitter experience, thru failure to get a set of fruit, that something is wrong, and possibly the lack of bees to pollinate the bloom is creating a serious situation.

The situation right here at the present time is about as follows: Very few colonies of bees are to be found in, or near the orchards; and observations lead me to think that the various species of wild bees are being exterminated. During the last few years, the set of fruit here has been fair, but not nearly so satisfactory as could be desired. No doubt the fruit-growers will soon be sitting up and taking notice. It is to be hoped that they will.

Nova Scotia.

Transfering Bees Quickly

By John Gray

I do not think you gave thought enough to your answer to "Virginia" on transferring bees from boxes to frame hives. He proposed to set the box on top of the body of frames, with a bee escape board between. Such a method is not very practical and won't work.

There is only one right way. That is to turn the box upside down and, setting the body with frames on top of it, pound vigorously on the sides of the box-hive for five minutes or so with stout sticks or iron rods. Of course, knocking the top off would save turning the box upside down, and then one could smoke them while pounding. The bees and queen will leave brood and all and go up. Then set them on the new base, put on a queen excluder, and set the box on top of it.

Leave it there for three weeks, during which time all the brood hatches. Then replace the queen excluder by a board with a small auger hole. Half inch is large enough. Before you do that, drum the bees again, by setting them off and putting an empty body over them, so as not to disturb the rest of the bees. This will drive all the bees, young and old, out of the box. Give these last bees to the colony by shaking on the ground in front or setting the body containing them on top of the new hive. By putting this empty box-hive still on top of all over the board with a small hole, the bees below will go up and bring the honey down. They won't store any up there, and in bringing it down have a sense of robbing.

Give me that box-hive and two sticks and in five minutes I will have all the bees with their queen deserting the box, going up into the body with frames by the incessant rat-a-tat, rat-a-tat. Put the excluder on, set the box on top and in three weeks all the brood will be hatched. So you lose not a bee, and after a new beating, and replacing the excluder with the board with an auger hole, the bees will now bring the honey down. It never fails. California.

A Good Report

I live in a section that is not considered very good for the production of comb honey. This is my record for the past year:

Starting with seven colonies, I increased them to thirty-three colonies, took off 2110 pounds of choice pound section honey and 253 pounds of extracted honey. In September all of my colonies had from forty to fifty pounds for their winter supply. From one colony I made an increase of three colonies, took off 394 pounds of comb and four pounds of extracted honey.

Willis A. Lewis, Pennsylvania.

A Novel Christmas Idea

Mr. and Mrs. Armstrong Allen, of Nashville, Tennessee, are enthusiastic bee folks, although Mr. Allen is employed in the publishing business in the city. This year they secured a good sale for honey at holiday time by putting up packages in suitable style for the holiday period. They had a special holiday card reading, "Honey for My Honey. Wishing You a Sweet Christmas." Many purchasers bought the honey in Nashville stores and sent it to friends with this cheerful greeting.

Meetings and Events

Duties of League Members

The May issue of the "American Honey Producer" announced my appointment as secretary-treasurer. The Constitution and By-Laws specifically define the duties of the officers of the League, but fail to define the duties of its members. For over fifty years there has been some kind of a national beekeepers' organization. This being an institution made by human beings, naturally it would not be perfect, but I do not believe that there is a honey producer in America that will not agree with me when I say that it has greatly improved from the beginning up to now. There is a place for the League and it is the duty and the business of all persons interested in the marketing of bee products to affiliate with the American Honey Producers' League or some other organization with a national scope. It is not necessary for me to outline the many business activities of the League, because you know them, but it is sufficient proof that there is a demand for a national organization or it could not have existed for more than fifty years.

The national organization will be just what the members of the organization make it. From time immemorial it has been customary for the members of an organization to feel that they have completed their duty when they have paid their dues or membership fee for the year and assisted in the election of the officers and directors. Now, friends, this should not be the case of members in the league. Your officers can only do so much. It should not be expected of them to be perfect, because that is too much to expect. It is the duty of every member to assist in increasing the membership of the organization and take a part in the work that is to be done, and while I am secretary I shall do all within my power to encourage activity among the members of the League. The League has a publication which is hanging on an eyebrow, and unless the beekeepers and the members of the League do more than they have in the past, it will pass out. The dues for a year for membership in the League is $1.50. I am sure that every beekeeper in the United States can afford to contribute $1.50, and I want you to do it. You will find in the May issue of "Gleanings in Bee Culture," the "American Honey Producer" and other journals the announcement of the American Honey Institute. This was made possible by contributions by the G. B. Lewis Company, Dadant & Sons, A. I. Root Company, Leahy Manufacturing Company, August Lotz Company, Superior Honey Company, Fred W. Muth Company, Diamond Match Company, and A. G. Woodman Company. They have guaranteed $5,000, which will enable the American Honey Institute to function on a very limited program for one year. They have employed the eminent Dr. H. E. Barnard to head and manage this institute. The beekeepers of America are fortunate in having the services of this noted gentleman. It would be well if we beekeepers in America would contribute our membership to the American Honey Producers' League and make it possible for the League to give $5,000 to assist in this wonderful work. As your secretary, I will do everything within my power to build the American Honey Producers' League to the station where it will be more useful and beneficial and to assist in any movement that will further the interest of beekeepers and allied industries.

J. V. Ormond, Secretary,
American Honey Producers' League.

Entomological Congress in August

The fourth International Congress of Entomology will be held at Cornell University, New York, beginning August 13, 1928. A section devoted to apiculture is being planned in connection with this Congress and a number of prominent men who are doing work on bees in other countries have already expressed their expectation to attend. Sessions of the apiculture section will be held throughout the week daily, either separately or in conjunction with other sections which have programs of interest to those working on scientific phases of beekeeping.

On August 20, immediately following the Congress, the New York State Federation of Beekeepers will hold its annual summer picnic at the home and apiary of Mr. E. L. Lane at Trumansburg, a few miles from Ithaca. This arrangement is made so that the men attending the Congress will have an opportunity to meet with the New York state beekeepers in their outing. For the two days immediately following the picnic, visits are being arranged to commercial apiaries for the visitors from other states and from foreign countries.

The program for the Congress and for all sections is by invitation only, and special attention will be given to addresses by visitors from other countries. Some important papers are already scheduled and the program promises to be an important one.

Massachusetts Society

The Eastern Massachusetts Society of Beekeepers has closed a very successful winter series of meetings at

F. J. RETTIG & SONS

BEEKEEPERS' SUPPLIES

455-485 W. Canal St., Wabash, Ind.

5 lbs. Medium Brood Foundation	$3.50
5 lbs. Thin surplus	3.85
5 Ten-frame One-story Hives	10.00
100 Hoffman Frames	4.75
500 4⅛x4⅛x1⅞ No. 1 Sections	4.75
2-Fr. Ball-bearing Revers. Ext'r	23.50
5 Eight- or Ten-frame Escape Boards	1.15
5 Eight- or Ten-frame Supers fitted for sections or frames	3.75
5 Tops, eight- or ten-frame, wood	2.95
5 Bottoms, eight- or ten-frame	3.00
10-Inch Hive Tool	.50
100 Scalloped Wood Separators	1.15

Write for our 1928 catalogue and get all our prices. Send in your old comb and cappings; we will render them for 5c a pound and pay you the highest market price for your wax or any you may have.

HOLLOPETER'S

BREAD AND BUTTER QUEENS

For practical beekeepers who make bees pay. Northern bred from hardy, prolific stock. Great workers.

One untested Italian queen, $1.00; five, $4.50; ten, $8.50; twenty, $16.00.

Safe arrival and satisfaction guaranteed

J. B. HOLLOPETER

Rockton, Pa., L. B. 80

Save Time--Save Worry

Dadant's Wired Foundation

Can be nailed into Lewis Slotted Bottom Bar in a jiffy. And such wonderful combs!

Sold by all Dealers in Lewis Beeware and Dadant's Foundation

FOR OVER 50 YEARS

Beekeepers in many lands have been pleased with this most important tool in Beekeeping. Your Bingham Smoker is offered for sale by numerous dealers.

TIN CONTAINERS

When you are in the market for anything in Tin Cans or Pails, ask for our interesting prices, giving quantity wanted.

Insist on the Best

A. G. WOODMAN CO.
Grand Rapids, Mich.

PACKAGE BEES

And High Grade Italian Queens

Let us quote you prices. We have the stock and are turning out hundreds of queens better than ever.

THE CROWVILLE APIARIES

J. J. Scott, Prop. Crowville, La.

Our eighteenth year

MOTTS' NORTHERN BRED ITALIAN QUEENS

Reared second door from the postoffice. Save three days' confinement by R. F. D. and hot mail sacks from southern route. Queens selected, guaranteed to be purely mated. April and May, $1.25 each, $13.00 for twelve. After June 1, $1.00 each; 24 at 95c, 50 at 90c, 100 at 85c each. Select tested, $2.00. Breeders, $5.00 up; virgins, 50c. See list. No disease. Safe delivery and satisfaction guaranteed.

E. E. MOTT & SON, Glenwood, Michigan

BEE PARADISE

Minnesota and North Dakota lead in the production of sweet clover seed. Acreage increasing rapidly. In six counties in northeastern North Dakota there are about 122,000 acres of sweet clover. Climatic conditions are extremely favorable for bees; warm summer days and cool nights. Write for FREE BOOK on agricultural resources of Minnesota and North Dakota. LOW ROUND TRIP EXCURSION RATES.

E. C. LEEDY

Great Northern Railway, Dept. J-2

St. Paul, Minn.

Mack's Queens

Are Extra Hardy
They are Northern Bred

Are Extremely Prolific
They make rousing big colonies

And they produce such nice, big, yellow, ambitious bees.
Our PRIDE. Your Desire

Just talk to any one of Mack's many customers and see what they tell you about them. Fully guaranteed or your money back

Prices to July 1st

$1.00 each $10.00 doz.
$75.00 a hundred

Will have a number of 2-pound packages for June delivery at $4.50 each; ten packages $40, queens included. Full weight and safe delivery guaranteed.

Herman McConnell

(The Bee and Honey Man)

Robinson Route 2 Illinois

Telegraph and Telephone
Oblong, Ill.

which several well-known beekeepers delivered addresses expounding various methods in their practice which tend towards greater success. The annual summer Field Day will be held some time in August, probably at the Essex County Agricultural School, Danvers, Massachusetts. The actual date will be announced later, when it is hoped a large number of beekeepers will attend.

The late election resulted as follows: President, George A. Meigs, of the Essex County Agricultural School; secretary-treasurer, Thomas J. Hawkins, Everett, Massachusetts.

Young Bees for Nurses

Jay Smith, in his article on nurse bees, February issue, page 80, does not state the case quite correctly. It is not bees a day or two old that have been regarded as nurse bees, but young bees.

Possibly his failure to get queen cells accepted in a colony formed by very young bees exclusively arises from another cause, a badly unbalanced force of bees for the job in hand.

I still believe young bees are the main factor in rearing queens—a normal colony with a preponderance of young bees of the right age to secrete wax and build cells as well as feed the larvæ.

Remove a strong colony from its stand and allow the old bees to return to the old location. This removed colony of mostly young bees will do a good job in starting cells, and finish them also, if they have a good supply of pollen and uncapped honey, but will do better work with a force of old bees bringing in pollen, water and nectar.

Someone, and I think it was C. P. Dadant, once wrote of moving some bees a short distance and so many old bees returned that it was thought a good chance to make a new colony, but the queen they raised was so poor that the attempt was a failure.

E. M. Cole.

(They did not rear any queen from the brood given them.—C. P. Dadant.)

Time Required by Bees to Gather Pollen, Honey and Water

Our good friend, Dr. O. W. Park, of Ames, one of the most careful experimenters in the U. S., has just written a bulletin, No. 108, on "The Time Factors in Relation to the Acquisition of food by the Honeybee." The bulletin contains about forty pages of information.

As a matter of course, the time required for bees to gather food is bound to vary greatly, owing to the distance to be traveled, the weather and the greater or less supply of the food sought. Water was found to require the least time, and it was ascertained that a water carrier could make a round trip in about five minutes, while a trip for pollen may be made in a quarter of an hour, and a trip for nectar requires an average of about an hour.

So many circumstances influence the action of the bees, in the number of their trips, the distances traversed, the time required to secure their load, that it would be impossible for us to give a detail. The booklet must be read to appreciate the difficulties overcome in making the experiments. It is well worth the time of the apiarist to read these experiments in detail.

In order to show the difficulties, we might mention that Dr. Park gives a list of the different experimenters who have made similar researches and that the results obtained by them vary from eighty-five trips per day to only four trips per day. Bees in robbing made the greatest number of trips. But robbing is hardly representative of harvesting by bees. So the fast records mentioned are to be eliminated. This must be a fascinating study.

Bees Pay Tribute to Farm Owner

Newell, S. D.

More than forty tons of honey made from sweet clover is the crop that is expected by Dr. O. H. Clark, of Newell, who employes three men regularly and needs extra help during the spring and fall to care for his 500 stands of bees. The honey gatherers are divided in nine yards which are scattered over an area of thirty-two miles on the Belle Fourche irrigation project.

Dr. Clark purchased sixteen colonies of bees four years ago as a hobby. He cares for them himself and became so fascinated with the work that the hobby grew into a full-fledged business.—Exchange clipping.

Canadian Increase in Production

Reading the Canadian magazines, we find that the increase in crops in the western provinces has greatly disturbed the Canadian honey market. The Cooperative Company of Canadian Honey Producers is having considerable trouble. Yet, some sort of cooperation is just what they need, and they will surely succeed if they keep on. All it requires is good management and judicious advertising, to sell the sweetest of all sweets.

Cellar Wintering of Bees

By Leland Farnsworth

I BUILT a cellar last year, size 58 feet long, 16 feet wide, 9 feet deep, 8-inch concrete wall. It is built in side hill and is banked to eaves with earth all around, has gable roof and roofing is metal; gables are also covered with metal. I have 1-7-inch by 3-foot ventilator near each end on roof. Building sits north and south, with a door in north end of gable and window in south end. There is a walk the length of the building so I can see what the temperature is at any time without going in the cellar where the bees are. I have three ventilators 7 inches square that reach from top of shavings through ceiling and within one foot of the cellar floor. Between ceiling and cellar floor is 6 feet 6 inches, and from ceiling to top of plate is 30 inches, which is filled with planer shavings. There is 125 feet of 8-inch tile around four feet underground that comes up in the middle of the cellar. From the cellar door out, the tile runs up hill a little, say three feet. The cellar floor is on the level with the outside. There are two walls at the south end so as to make a dead air space. There are four sets of doors there, so the cold has little effect on the cellar. The doors are also covered with metal—that is, the outside doors. This cellar is mouse proof. Of course, it was quite late last fall when I got the cellar done and got the bees in, so it was quite damp. I put 233 colonies in the cellar. They were fed sugar syrup, two to one water, so bees had good stores. I have three thermometers hanging in the cellar, one near floor, one in middle and one at the ceiling; all register the same when placed side by side. The one at the floor stands at 44, the one in the middle and at the ceiling stands at 48. This seems to be the point at which they stand at about all the time, never go below. They have run up to 50 a few times. Now I have the hives piled four and five high, close together, side by side, two rows lengthwise the building, facing the center of the cellar. In the south end there are no bees within twelve or fifteen feet of the door, and the ceiling around within four feet of the wall is all wet with great drops of water and the doors inside are wet, others dry. Most of the top hives for two or three hives down from the top have drops of water hanging on the back end on cover, just outside of hive body. My cover projects over hive body 1½ inch all around and is flat, so when I put bees in the cellar I pry cover up and put in a piece of a section on back corners so as to let out moisture.

Bees seem to be resting pretty

(Continued on page 314)

BEES and QUEENS

2-Pound pkgs with queens, each $3.00
3-Pound pkgs. with queens, each $4.00
5% discount on 25 or more packages

Queens—Untested, each, $1.00; 12 for $10.00; 100 for $85.00. Breeding queens, none better, each, $5.00.

I challenge the world to produce better bees than I offer. No disease, prompt service, safe delivery and satisfaction guaranteed. I am prepared for large or small orders. Address

W. H. LAWS, BOX 505, WHARTON, TEXAS

HONEY JARS
will sell your honey

Made of Clear Glass they give that increased sales value to your honey. No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern and strength in Construction
A trial will convince you!

SIZES
Individual, half pound, one pound & two pound
Accurate Graduation

DISTRIBUTORS

HOFFMAN & HAUCK, OZONE PARK, N.Y.
THE A.I.ROOT COMPANY, OFFICES-CHICAGO, ILL., COUNCIL BLUFFS, IOWA, SAN ANTONIO, TEX-ST PAUL, MINN., SYRACUSE, N.Y.
M.H.HUNT & SON, LANSING, MICH.
A.G.WOODMAN CO., GRAND RAPIDS, MICH.
A.W.YATES, HARTFORD, CONN.
F.COOMBS & SON, BRATTLEBORO, VT.

HAZEL-ATLAS GLASS COMPANY
GENERAL OFFICES
WHEELING, W. VA.

"THEBESTO" BEE SUPPLIES

Largest stock in intermountain region of hives and other supplies, especially made for western beekeepers. Prompt service. We can save you money. Write now for illustrated price list. Our cooperative organization was founded in 1899.

The Colorado Honey Producers' Ass'n
Denver, Colo.

35 STATES

Were Stung with Howell's Queens in 1927

TONS OF HONEY

Good untested, one grade, 60c each
100 for $57.00
Tested, $1.50 each
Extra Select Tested, $3.00

D. W. Howell, Shellman, Georgia

SUNNY LAND BEES and QUEENS

THREE BAND ITALIAN

Extremely profitable, beautiful and gentle. State inspected. Satisfaction guaranteed.

Two-pound combless package with select untested Italian queen, $3.25; ten packages or more, $3.00. Three-pound package, $1.00 more each.

Two- and three-frame nucleus with untested Italian queens same price as two- and three-pound packages.

We ship only young bees, no drones, and guarantee same delivery to your express station.

QUEENS. QUEENS. QUEENS.

The best cost no more. Those who have tried our queens are pleased and are buying more. We are now shipping 50 queens per day. With our quality service and price we expect to add many new customers to our list. GIVE US A TRIAL.

One queen, 75 cents; ten queens, $7.00; twenty-five queens, $16.25; fifty queens or more, 60 cents each.

CRENSHAW COUNTY APIARIES
Rutledge, Alabama

SHAW'S
BEES AND QUEENS

Are Seldom Equaled and Never Surpassed

No disease here—never has been. I ship in light cages on sugar syrup. All packages 10 to 20 per cent overweight when shipped. Young three-band Italian bees and queens. I guarantee all queens to be purely mated. I also guarantee you will get them when you want them. If there are any losses, I assume them and give prompt replacement or refund. Your order booked without deposit.

PRICES

Two-pound pkgs. with young queens: 1 to 24, $3.50; 25 to 49, $3.35; 50 to 100, $3.10.

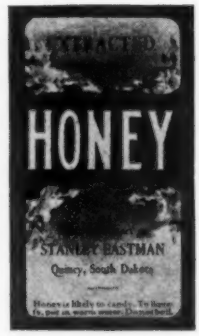
Three-pound pkgs. with young queens: 1 to 24, $4.50; 25 to 49, $4.35; 50 to 100, $4.10.

Queens, 50c each, any number

A. E. SHAW

SHANNON, MISS

Dress Your Honey Well



Choose Your Labels Carefully

Now

is the time to order honey labels, before the rush begins. We have a reserve stock of over a million awaiting your imprint.

How many do you need?

Honey Selling helps of all sorts.

Our catalogue contains some snappy new designs and we still have the old stand-bys that have been favorites with honey producers for many years.

Send for Catalogue now
A Post Card is all it costs

American Bee Journal

Hamilton, Illinois

PURE ITALIAN QUEENS

Of tested quality. April to November delivery. Bees inspected. Select untested, $1.00; dozen, $9.00. Discount on advance orders.

HUNTER & REAMY, Quitman, Ga.

BEEWARE

EXTRACTORS

American Cans and Pails, Glass Honey Jars, Wired Foundation
Catalog for the asking

If you wish prompt service, write

B. F. SMITH, Jr., Fromberg, Montana

MOORE'S STRAIN

Away back in 1879 I commenced rearing Italian queens with the object of improvement constantly in view.

By careful selection during all these years I have succeeded in producing a strain of three-banded, leather-colored Italian bees, known as **MOORE'S STRAIN OF ITALIANS**, which has won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. A. K. Whidden, San Jacinto, Cal., says: "In 1913, 80 per cent of the bees in this district died of European foulbrood. I had an apiary of 60 colonies headed by daughters of your queens in which I did not lose a colony, and in 1914 they made 360 pounds per colony.

"In 1917 I bought 12 queens of you and introduced them to diseased colonies. Four of them became too weak to recover, and they all got rapidly worse until it looked impossible for any of them to recover. In eight of them, as soon as the young bees from your queens began to hatch, the disease began to disappear. They cleaned up and stayed clean."

I am now booking orders for June delivery or later.

Untested queens, $1.00; 6, $5.00; 12, $9.00. Select untested, $1.25; 6, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE

MORGAN, KENTUCKY

RED STICK

PURE ITALIAN
QUEENS—PACKAGES—NUCLEI

Wire or write your last-minute orders; we can handle them promptly and correctly. We are ready for a big season, and our RED STICKS are going to make some bumping crops for all who will let them. Decide wisely. We STICK to our word.

PRICES JUNE 1

Select Untested Queens

1 to 4	5 to 9	10 to 24	25 to 100
$ .75	$ .70	$ .65	$ .60

Two-pound Packages

1	2 to 9	10 to 24	25 to 100
$3.10	$3.00	$2.85	$2.70

Three-pound Packages

$3.85	$3.75	$3.60	$3.45

Two-frame Nuclei

$3.35	$3.25	$3.10	$2.95

Three-frame Nuclei

$4.25	$4.15	$4.00	$3.85

Service and satisfaction guaranteed. Health certificate furnished. Pure matings and safe delivery guaranteed. Write for circular and further information.

RED STICK APIARIES, Baton Rouge, La.

Crop and Market Report

Compiled by M. G. Dadant

For our June crop and market report, we asked reporters to answer the following questions:

1. Condition of bees.
2. Condition of honey plants.
3. Prospects for a crop compared to 1927.
4. How much old honey left on hand?

CONDITION OF BEES

There is nothing unusual to report in condition of bees throughout the United States. In fact, conditions are practically normal everywhere as concerns the comparative strength of the bees with that of the same time last year.

There are a number of sections in which the warm weather of last fall and of early this spring has made bees short of stores, and considerable loss is being experienced by the smaller beekeeper who does not understand the necessity of feeding.

An additional number of colonies have become exceedingly strong because of a carryover of stores and the early warm weather.

In California, in the orange sections, many apiaries were not in sufficient shape to take advantage of the orange flow, while others harvested a good crop.

In Texas, bees are rather below normal, and in Wyoming conditions seem to be very unsatisfactory.

CONDITION OF PLANTS

In the northeast and central states there is no doubt but that the extremely open winter we had has had a very bad effect upon the clover plants. There has been a large amount of heaving of sweet clover and perhaps an equal amount of white clover. Under these conditions the honey plants are not surviving the winter in anything like the shape they did a year ago.

Conditions vary from 50 per cent in Ohio to 60 per cent in Wisconsin, 75 per cent in Iowa and Michigan, up to equal of last year in Indiana, Illinois and Missouri.

The eastern states seemed to have suffered more than the western in the heaving of the clover, and conditions do not seem to be nearly as good.

In the Southeast there was practically a failure of honey plants last year, and conditions are very much better. Georgia, especially, is reporting excellent prospects. Honey plants are short in Texas, owing to the drouth. Minnesota and the plains states report much better honey plant prospects than last year in the face of some heaving of the clovers through the freezing and thawing conditions of early spring. In the intermountain territory, Montana is reporting honey plants in excellent shape. Wyoming is poor; Colorado is hardly up to last year. Arizona and New Mexico conditions are good, and the same applies to most of the other intermountain territory as far as we are able to judge this early in the season. The snowfalls have been deficient and it is a question whether the water will be sufficient for irrigation purposes during the coming year.

California is in unusually poor shape. The rains have been almost totally lacking in southern California and the weather has been extremely unfavorable to bees in the northern sections. Some of our reporters state condition of honey plants has never been as bad as this year in California. Late rains may help slightly.

CROP PROSPECTS

Judging from the state of bees and condition of honey plants as reported above, it is apparent that the only sections which can hope for as big a crop as last year are some of the central western states, as Illinois, Indiana, Missouri, some of the plains states, Minnesota, the Dakotas, Nebraska, perhaps the intermountain territory and most of the southern states, namely, Georgia, Florida, Mississippi and Alabama. The latter two had practically no crop last year, and it would not be hard to improve upon conditions. Louisiana is much better situated than a year ago, and it is likely that Arizona and New Mexico will also be favorable.

If we were to make a rough guess, judging from conditions just at present, we would not estimate that the crop this year is going to be as heavy as a year ago, this being due to the fact that eastern states and many central western states cannot possibly have the honey flora they had in 1927, and California conditions will be equally as bad as they were a year ago.

While it is true that California in some sections is harvesting a nice orange crop, this will constitute the bulk of the crop, except in the irrigated sections. The Imperial Valley will undoubtedly have its usual honeyflow from alfalfa, but sage is almost entirely lacking and many other dry land plants have found it too dry this year.

Of all sections, it is apparent that Georgia is yielding the largest harvest this year, and perhaps Louisiana is next, as far as it is possible to judge this early in the season.

Of course, unusually good conditions for the intermountain territory may change predictions this early in the season and may help to boost the total crop much in excess of what it seems just now. However, our opinion would be that it is hardly to be expected that the total honey crop will be as large as in 1927, but that the deficiency outside of California will be in the central western and eastern states, where most of the honey is consumed locally under all circumstances.

HONEY ON HAND

From month to month conditions are improving as to the amount of honey on hand. The exportable surplus during March was not nearly so large as a year ago, but the difference is in the fact that this year the honey is not being sacrificed in order to get sales during the spring months, whereas last year the heavy exports were due to cut prices on honey.

The entire East is practically cleaned up on honey, with perhaps some distressed lots left in Pennsylvania and other eastern states. The entire Southeast is fairly clear of honey, except Florida, which is having a relatively large carryover. Louisiana, Texas, Arizona and New Mexico are practically clear of honey, as is also California.

In the Central West perhaps the largest carryover will be in Ohio, Indiana, Illinois, and Michigan, which had the heaviest crop last year, and where the carryover may be 10 or 15 per cent of the total crop, with honey moving far more freely than it did last year, offering a total cleanup of the crop before the new crop is available.

Other states which report a carryover are: Wisconsin, 10 per cent; South Dakota, 10 per cent; Nebraska, 5 per cent; Kansas, 15 per cent; Oklahoma, 5 per cent.

In the intermountain territory, honey stocks are being gradually cleared up and it is not likely that there is 10 per cent of the crop left on hand, and more plausibly only 5 per cent.

Of the western states, Oregon, perhaps, reports the largest carryover with 15 per cent.

All in all, when we consider the large quantities of honey which are usually available for the larger markets, we must state that conditions are far more favorable this year than they have been in recent years, although in the central western territory and perhaps some sections in the East there are a considerable number of distressed lots still on hand. These are, however, cleaning up rapidly owing to the relatively excellent demand which has developed during the spring months. We have reports from several of our reporters that the demand for May has been far in excess of anything they have known recently, and it is apparent that there will be an approach to a cleanup of many of these distressed lots.

DOMINION OF CANADA

Condition of bees is reported favorable from Manitoba and western provinces, as well as British Columbia, with a slightly poorer prospect for Ontario and Quebec.

The clover plants also have experienced considerable heaving in the provinces of Canada, which will reduce the prospects for a honeyflow there. In the western provinces there has apparently been sufficient snow and conditions seem never to have been better for a honeyflow.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 7c per word, with no discounts. No classified advertisements accepted for less than 49c. Count each initial or number as one word.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used beekeeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied either by a certificate of inspection from an authorized inspector or agreement made to furnish such certificate at the time of sale.

BEES AND QUEENS

PURE ITALIAN QUEENS — The three-banded, light color, May and June, prepaid. One to six young and laying queens, 90c each, $10.00 dozen. Special queens: One to six, $1.25 each; $12.00 dozen. For July to October, 10 per cent discount. The three-pound packages bees with good queens $3.50 each, any quantities.
Victor Prevot, Mansura, La.

NORTHERN QUEENS — Three-banded, leather-colored Italians. Unexcelled for gentleness and honey production. Untested, $1.00; tested, $2.00. Safe arrival and satisfaction guaranteed. Shipment after June 15.
Hopkins Apiaries, Withrow, Minn.

NORTHERN ITALIAN QUEENS—Untested, $1.25 each; ten, $11. Pontiac Apiaries, Auburn Heights, Mich.

NORTHERN bred three-band Italian queens. Bred from the mother that produced 408 finished sections in 1927. Gentle and prolific. Untested, one to ten, $1.00 each; ten or more 90c each. Tested, $2.00 each.
The Goble Apiaries, Bussey, Iowa.

RUSCHILL'S IOBRED Italian queens produce light-colored, three-banded bees that are real honey getters. Untested queens, $1.00 each. Chas. L. Ruschill, Colfax, Iowa.

GOLDEN ITALIAN queens that produce golden bees. Very gentle, good honey gatherers. State inspected. Safe arrival, satisfaction guaranteed. Untested, $1.00; six for $5.40; twelve or more, 80c each. Tested, $1.50. Select tested, $2.50.
D. T. Gaster, R. 2, Randleman, N. C.

WILLIAMS' ITALIAN queens of quality will produce a honey crop for you. They have headed big producing colonies for your neighbor. "Ask the man who owns one." Satisfaction guaranteed. Select untested, 60c each; ten or more, 50c each. Health certificate with every shipment. Seventeen years' beekeeping experience.
P. M. Williams, Mt. Willing, Ala.

PETERMAN'S select Italian queens from sunny California. One, $1.00; six, $5.50; 12, $10.00; 25, $20.00; 100, $75.00. Safe delivery and entire satisfaction guaranteed. H. Peterman, Lathrop, Calif.

FINEST Italian queens, $1.50 each.
William R. Stephens, Wingate, Indiana.

PACKAGE BEES—Hardy Northern. Van's Honey Farms, Hebron, Indiana.

SPECIAL June sale on package bees and queens; $3.00 each for two-pound package and mated Italian queen; three-pound package, $3.75 each. Italian queens, $1.00 each; six, $4.50; ten, $8.50. Breeders, $5.00 each. Health certificates. Satisfaction guaranteed. Benson Bee Line Apiaries Co., R. 2, Galena, Ill.

PURE Italian queens, each, $1.00; 12 for $10.00. Larger quantities at 75c. Two-pound package bees with select young queen $3.60. Additional pound to package, 85c. Health certificate furnished. We make prompt shipments. Safe arrival and satisfaction guaranteed.
Moncla Bros., Moncla, La.

FOR SALE—Italian queens. Untested: 1 to 10, $1.00 each; 11 to 25, 85c each; more than 25, 75c each. Tested, $1.50 each. Satisfaction guaranteed. Ready to ship June 1 to June 10. R. B. Grout, Jamaica, Vt.

LATHAM'S "She-suits-me" three-banded untested Italian queens, $1.50 by return mail. If ordered four weeks in advance, six queens for $5.00, twelve for $10, 50 for $40, 100 for $75.
Allen Latham, Norwichtown, Conn.

QUEENS—I use Honey Girl breeders, also have a Moore breeder, three-band stock. Chas. Wallace, Box 44, R. 1, Glenn Calif.

CRANDALL'S "Production-Bred" three-band Italian queens and bees. Healthy, hardy stock that is guaranteed to please you or money back. Untested queens, ready June 1, $1.00 each; 6, $5.50; 12, $10.00; 50, $40.00; 100, $75.00. Export queens, $1.25 each. Breeding queens with 2-frame nuclei, $10.00. Package bees and nuclei: Two lbs. of bees with queen, $4.50; three-frame nuclei with queen, $5.50. Circular on request. Try us.
A. E. Crandall, Berlin, Conn.

PACKAGE BEES with queens or without. Young queens; no drones; one-half pound overweight in every package; syrup feeder in cage. Two-pound package with untested queen: One to ten, $3.50; ten or more, $3.25. State inspection certificate attached. Prompt delivery. Satisfaction guaranteed. Little River Apiaries, Box 83, Gause, Texas.

PACKAGE BEES—Hardy Northern. Van's Honey Farms, Hebron, Indiana.

PETERMAN'S select queens are raised from best breeders obtainable and by the latest methods. They are yellow clear down and produce three-banded bees. Try them. One, $1.00; six, $5.50; twelve, $10.00.
H. Peterman, Lathrop, Calif.

THRIFTY Caucasians of 14 years' selecting. Tested queen, $2.00; untested, $1.00. Safe arrival guaranteed. State inspected.
Peter Schaffhauser, Havelock, N. C.

FOR SALE—Choice bright Italian queens. I have been building up this strain for 25 years for hustlers, good winterers, gentleness, and fine color. Health certificate furnished. Prices: Untested queen, $1.25; dozen, $12.00. Breeder, $10.00. After September 1, $10.00 per dozen. Emil W. Gutekunst, Colden, Erie Co., N. Y.

PURE ITALIAN QUEENS—Untested, $1.00; tested, $1.50. Two-pound package, $3.00. Add price of queen wanted. Safe arrival guaranteed after May 10. Forty years' experience breeding and shipping bees and queens. Birdie M. Hartle, 924 Pleasant St., Reynoldsville, Pa.

FOR SALE—Golden Italian queens, $1.00. Bright yellow bees; splendid honey gatherers. Cap honey a beautiful white. Once a customer, always one. Queens ready to mail May 20.
J. F. Michael, R. 1, Winchester, Ind.

DON'T GUESS—Be sure every queen you buy will arrive safely, be purely mated and give one full year's satisfactory service or be replaced free. That's our guarantee to you. Holloway Apiaries, Marietta, Okla.

SIMMONS Italian queens for quality and service. One, $1.25; six, $7.00. Also nuclei. Fairmount Apiary, Livingston, N. Y.

IF you want bees that are gentle to handle, good honey gatherers, and beautiful to look at, my strain of golden Italians will please you. Prices: Untested, $1.05; six, $5.50; twelve to forty-nine, 80c each; fifty or more, 75c each. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, $1.50; twelve, $14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

TRY our high class queens and get the honey. We sell only the best selected Italians, guarantee safe arrival and complete satisfaction in every way. Our queens are personally reared and we want you to try them. Prices are $1.00 each; 6 for $5.50; 25 at 80c each, and 50 or more 75c each.
Salida Apiaries,
T. L. Nicolayson, Prop.
Salida, Calif.

PACKAGE BEES—Hardy Northern. Van's Honey Farms, Hebron, Indiana.

GERMAN bee shipper. Bees and queens in pound packages, leather-colored Italians. If you want good bees, prompt service and fair treatment, give me a trial. Shipped on sugar syrup without comb. Two-pound package with untested queen, $3.50; ten or more $3.25. No disease. Health certificate attached. Ten per cent books orders. Satisfaction guaranteed. William Piefer, Gause, Texas.

PETERMAN'S select queens are solid patch layers and build up colonies quick. If quality counts, we have them at no greater prices. One, $1.00; six, $5.50; twelve, $10. H. Peterman, Lathrop, Calif.

BEES and queens for sale. The 1928 bee season is near at hand. Look out for your wants and let us figure with you. We have some of the best bees and queens that are raised. Prices are right. Queen bees $1.00 each; $10.00 per dozen; $70.00 per hundred. One pound of bees with queen, $2.75; two pounds of bees with young queen, $4.50. All charges paid. Graydon Bros., Greenville, Ala., Route No. 4.

WANTED—To book orders from 300 to 500 packages pure Italian bees and queens for April and May delivery.
O. P. Hendrix, West Point, Miss.

CAUCASIANS—If they are Quinn's, they are pure; they hold the world's record for both comb and extracted honey. Most gentle of all bees. Carniolans in their purity, Italians that are bred, not merely raised. Prices: Untested, $1.50; select untested, $2.00. Tested, $2.50; select tested, $3.00. Ten per cent off on lots of one dozen. Special prices on lots of 100, 500, 1999. Are you interested in a long tongue reach? If so, try Quinn's bees. Charles W. Quinn, C. E., the breeder of queens, Box 14, Englewood, Fla.

ITALIAN queens and package bees. Two-pound package bees with queen, $3.00; three pounds, $3.75. State inspection certificate with each shipment. Safe delivery and satisfaction guaranteed. The Mangham Apiary Co., C. S. Duncan, Prop., Mangham, Louisiana.

LISTEN—If you wish to purchase high grade Italian queens, write for circular describing our famous Carolina queens. Every queen guaranteed to give satisfaction. One to five, $1.00 each; six to twenty-four, 85c; twenty-five to fifty, 75c. Carolina Bee Co., W. O. Curtis, Mgr., Graham, N. C.

WILL exchange package bees for good real estate, or anything valuable. Van's Honey Farms, Hebron, Indiana.

GOLDEN UNTESTED QUEENS—Gentle and good honey gatherers as can be found, $2.00 each. Tested, $4.00 each. Best breeders, $20.00. Over thirty years a golden Italian breeder.
J. B. Brockwell, Barnetts, Va.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00.
A. W. Yates,
15 Chapman St., Hartford, Conn.

GOLDEN Italian queens and nuclei (or package bees) for 1928. The big, bright, hustling kind (the kind that get the honey). Satisfied customers everywhere. Untested, $1.00 each; 6 for $5.00; 12, $10.00; 100, $75.00. Tested, $2.00 each. Two-frame nuclei or two-pound package with queens, $4.50 each; ten or more, $4.00 each. Safe arrival guaranteed. Health certificate furnished. E. F. Day, Honoraville, Ala.

HIGHEST grade Italian queens—Tested, $1.50; untested, 75 cents. Package bees, one pound, $1.50; two pounds, $2.50; three pounds, $3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.
T. L. Davis, Buffalo, Leon Co., Texas.

GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 livery guaranteed. C. B. Bankston, pounds, $2.50; 3 pounds, $3.25. Safe de Box 65, Buffalo, Leon Co., Texas.

FOR SALE

EIGHT-FRAME Markle honey extractor, in first-class condition; has extracted only thirty tons of honey. Apply S. P. Hodgson & Sons, New Westminster, British Columbia, Canada.

FOR SALE—Barnes No. 4 combined saw and woodworker equipped with four rip and cut-off saws and self-feeder; run by hand or engine power; ideal for making hives, frames, etc. A bargain at $35.00.
Leo Bentz, Woodstock, Ill.

FOR SALE—Root wax press. Two-frame extractor. Ira Eisenbise, Lanark, Ill.

FOR SALE—100 cases 2-60-lb. cans each; used, but in excellent condition; they are bright and nearly as good as new; 25c per case, or $12 for fifty cases. Twenty cases, two dozen each, one pound net H. A. honey jars, $20. Twenty cases, two dozen each, 8-ounce capacity honey jars, $16. Fifty 8-frame extracting supers, full depth with Hoffman frames, all combs drawn on full sheets Dadant's wired and three-ply Airco foundation, no disease and in excellent condition, all painted white, $2.00 each, or $90 for the lot.
Silsbee Apiaries, Bath, N. Y.

EIGHT-FRAME hives Italian bees with queens, guaranteed free from disease, Hoffman frames, wired, $10 per hive. Wilmer E. Clarke, State Hospital, Ward 2, Binghamton, N. Y.

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers k. d., and many other items in good usable condition. Reason for selling items, no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. B. Lewis Co. at Watertown, Wis.; Albany, N. Y.; Lynchburg, Va.; Texarkana, Ark., or Sioux City, Iowa.

FOR SALE—One or a hundred colonies in ten-frame hives with food chamber with honey. Frames drawn from full sheets of foundation. Colonies headed with young queens of J. P. Moore and Jasper Knight stock. Have never had disease in my yards and will guarantee free from disease. Price, $10.00 f. o. b. Bayard, Iowa. Bert Gander.

FOR SALE—500 colonies bees and equipment for comb, extracted or chunk honey, all in good standard eight-frame hives. Located in heart of sweet clover district of San Luis Valley of Colorado.
L. W. Howsam, La Jara, Colo.

TRY Pinard's labor-saving nailless queenbee shipping cage. Send for circulars. A. B. Pinard, R. 1, Box 1, San Jose, Calif.

COMB HONEY producers using a Rauchfuss combined section press and foundation fastener, write me for free information regarding improvement on your machine guaranteed to enable you to fold more sections per hour, do better work, and keep sections from being spotted up with melted wax which runs down from the hot-plate. C. Holm, Prop. Base Line Bee Farm, Genoa, Illinois.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn, odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

HONEY AND BEESWAX

TWENTY cases comb honey, 14-ounce, light color. Price on request. C. W. Fitzsimmons, Mason City, Iowa, R. 3.

FANCY white clover extracted honey, any sizes. Prices and samples on request. Kalona Honey Company, Kalona, Iowa.

FOR SALE—White comb honey, fancy and No. 1 grades, Wisconsin and Illinois stock. Write for prices. A. I. Root Company of Chicago, 224 W. Huron St., Chicago, Ill.

PARTIES wishing extra fine honey reasonable, any time, write Lee Horning, a Producer, Morrison, Ill.

HONEY wanted. Always in the market. Any quantity, any grade; extracted or comb. We pay cash. Hoffman & Hauck, Inc., Ozone Park, N. Y.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, South Bend, Ind, 1235 Lincoln Way West.

STURDEVANT, St. Paul, Nebraska. Finest quality clover honey.

COMB and extracted, new crop, ton lots. State price and full particulars. J. Curtis Alexander, R. 1, Asheville, N. C.

FOR SALE—Fancy white clover honey in new 60-lb. cans at 9c per pound; twelve five-pound pails, $7.50. Discount on large lots. Joseph H. Hoehn, Ottoville, Ohio.

WHITE CLOVER HONEY—Extracted, comb and chunk honey. Prices on request. Sample 15c.
F. W. Summerfield, Waterville, O.

WANTED—A car or less quantity of white honey in 60-lb cans. Mail sample and quote lowest cash price for same.
J. S. Bulkley, Birmingham, Mich.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

FANCY white tupelo extracted and bulk comb, packed in five-pound tin.
J. L. Morgan, Tupelo Apiaries,
Apalachicola, Fla.

FOR SALE—Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co.,
217 Broadway, New York.

HONEY FOR SALE—In 60-lb. tins. White clover at 12c lb.; white sage at 12c lb.; white orange at 14c lb.; extra L. A. sage at 11c lb.; Hoffman & Hauck, Inc.,
Ozone Park, New York.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey.
The Colorado Honey Prod. Ass'n,
Denver, Colo.

SUPPLIES

HIVES, sections, foundation and all kinds of supplies. As we have practically no overhead expense, we make a big discount from popular prices. Catalog free.
J. W. Rouse, Mexico, Mo.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

HIVES, covers, bottoms and frames, standard or made to your order. Write for prices. High Line Apiaries, Glen Flora, Wis.

"BEEWARE" and Dadant's Wired Foundation for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices.
B. F. Smith, Jr., Fromberg, Mont.

ROBINSON'S comb foundation will please the bees, and the price will please the beekeeper. Wax worked at lowest rates.
E. S. Robinson, Mayville, N. Y.

COMB foundation, bee supplies manufactured. V. Soharev, Slocan, B. C.

FOR SALE—Good second-hand 60-lb cans, two cans to a case, boxed. We have large stocks of these on hand. Please write for prices if interested. We are offering only good cans and good cases.
C. H. W. Weber & Co., Cincinnati, O.

MISCELLANEOUS

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

MAKE queen introduction sure. One Safin cage by mail, 25c; 5 for $1.00.
Allen Latham, Norwichtown, Conn.

YOU can read in either English or French the report of the Seventh International Congress of Beekeepers held at Quebec September 1-4, 1924. Not more than a dozen copies left. Orders filled in rotation. Postpaid, $2.25. American Bee Journal.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Systema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

GLEANINGS IN BEE CULTURE, published at Medina, Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is George S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

WESTERN HONEY BEE, 2823 E. 4th St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. $1.00 per year. Send for sample copy.

WANTED

WANTED—One two-frame, hand power extractor. J. C. Merchen, Oldenburg, Ind.

WANTED—To buy common black German tested queens. State price in first letter and guarantee safe arrival. Edwin Becker, New Dundee, Ontario, Canada.

WANTED—Single, young, energetic, conscientious man of good habits and recommendations, to assist in extracted honey production for balance of season or longer. Seven to eight hundred colonies. Modern equipment throughout. Give references and state weight, height, age, previous experience, and wages expected, all in first letter, or expect no reply. Man having had some brood disease experience preferred. The Hoffman Apiaries, R. 1, Janesville, Minn.

COMPETENT BEE MAN, capable of taking charge of 1000 swarms of bees located in several outapiaries if necessary. Excellent opportunity for the right man. State experience and wages. Year round position.
J. E. Crane & Son Middlebury, Vt.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.
Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

RABBITS

RABBITS—Make big profits with Chinchilla rabbits. Real money makers. Write for facts. 824 Conrad's Ranch, Denver, Colo.

THE ENGRAVINGS APPEARING IN THIS PUBLICATION ARE MADE BY THE
Waterloo Engraving & Service Company
Waterloo, Iowa
Makers of Metal Engravings and Electrotypes
Designs Furnished for Letterheads, Labels, Etc
We do no printing
WRITE IF YOU NEED DESIGNS

Golden Queens and Banded Bees

Untested queens.....$1.00 each
Tested queens.....$1.50 each
Bees.....$1.50 per lb.
Nucleus.....$1.50 per frame

Bees inspected; free from disease

J. W. SHERMAN, VALDOSTA, GA.

HODGSON'S RADIAL HONEY EXTRACTOR

has been a success from the first. The man who bought the third machine says: "It will extract honey out of combs, that is so ripe, heavy and cold that it will barely run out of the extractor. . . . I am surely delighted with the machine."

Manufactured by

S. P. HODGSON & SONS

NEW WESTMINSTER,

British Columbia, Canada

Diemer's Three Banded Bright Italian Queens

Before June 15, Select Untested, any number, $1.20 each. Tested, $2.00.

After June 15, Select Untested:

4 or less, $1.00 each
5 to 10, 90c each
11 to 20, 85c each
21 to 50, 80c each
51 to 100 or more, 75c each
Tested, $1.50

Package bees, prepaid to fourth zone:
3 pounds with queen, $5.00
2 pounds with queen, $4.00

After June 15, 10 per cent less

Queens sent in introducing cages. Write for circular giving principle of queen introduction.

Prompt service and a square deal

J. F. DIEMER, Liberty, Mo.

PACKAGE BEES

Shipped by express on sugar syrup without comb.

(Shipped on comb by request only.)

No disease and safe arrival guaranteed. Health certificate attached. Twenty per cent with order.

With select untested Italian queen:

1 to 10 2-lb. pkgs. ..... $3.75 each
10 to 25 2-lb. pkgs. ..... 3.65 each
25 or more 2-lb. pkgs..... 3.50 each

For 3-lb. pkgs. add $1.00 to each package above. Without queen, deduct $1.00 each.

JOHN A. WILLIAMS

Box 178, Oakdale, Louisiana

(Continued from page 309)

good at 48, but when it goes above that they get restless. What I can't understand is this moisture on covers and ceiling and in the north corner of ceiling. There is no moisture on the two bottom rows of hive covers. It is on top rows and the air is 4 degrees higher there. There doesn't seem to be any air passing through the tile at all, as I have watched it closely. The air comes in through the ventilators in the roof instead of going out. To keep the cellar down below 50 degrees, I cut two holes 12 inches square through the ceiling and put ventilators 4 feet long there to let off warm air. I am thinking of putting in two 15-inch globe ventilators 6 or 8 feet long on roof and remove the others. Do you think I will get pull enough then to get air through the tile and keep the cellar cooler and take out the moisture? The air above the shavings in gable is quite warm all the time. In real cold weather there is frost on roof boards one-fourth inch thick. The walls are also damp in the cellar. I forgot to say the bees were more restless before I cut those two openings in the ceiling than since, and cellar ceiling was more damp, but hive covers are about the same. I believe I have explained best I can, so if you will tell me what you would do to get rid of this moisture and to get the air through the tile and cool cellar down about three or four degrees, I will be very thankful. I have no way of installing a fan for circulation. Michigan.

It appears to me that you have things about right. But the extra moisture is very probably due to the tight condition of the cellar wall. Perhaps the concrete of this wall did not dry thoroughly, in which case it would be giving out moisture. A stone or brick wall would probably be drier. However, I believe that if you let it air very thoroughly next summer it will cease giving out moisture.

The intake of air must be at the bottom and the discharge at the top, in order to make a draft for ventilation. If your cellar is too warm, I see but one way to do, and that is to open the doors to the outside some night for a part of the night. Dr. Miller used to have his cellar door open whenever his cellar got too warm.

The trouble with us has always been keeping the cellar cool enough. About 45 degrees was the degree at which the bees kept the quietest.

If the bees are not suffering, I would not recommend any change at present, because the more you disturb them the more likely they will be to suffer. We always gave plenty of air to the colonies by raising them from the bottom board and giving an outlet for air at the top also.—Editor.

Iowa Apiarist's Report

The Annual Report of the Iowa State Apiarist for 1927 has recently appeared. This is a publication of high class that may well be included in every library of beekeeping literature. This issue contains ninety pages of papers by well known contributors, and covers not only the work of the apiarist in his official capacity, but papers from the beekeepers' convention.

Few states have made provision for the publication of material of the kind included in the Iowa report, and the appearance of the Iowa volume is awaited with interest by many readers outside the bounds of that state. While there is material of primary interest to Iowa beekeepers, the most of the papers are of value to beemen, no matter where they live. The papers are not a mere rehash of old subjects, but are new and fresh and interesting.

State Apiairst F. B. Paddock is to be congratulated on the high quality of material which is included in his report. Those interested can probably secure copies by writing direct to Mr. Paddock at Ames, Iowa.

Ohio's Official Organ

We have before us Volume 1, Number 1, "The Beekeepers' Forum," which is the May-June, 1928, official publication of the Ohio State Beekeepers' Association.

Miss Florence Naile is the efficient secretary of this association, and it is hoped to make "The Forum" the regular monthly bulletin to the members.

Application Refused

Application docketed with the Western Trunk Lines Committee to stop carloads of honey in transit at intermediate points to finish loading the same failed of adoption by this committee.

It was hoped by the Intermountain beekeepers to be able to do this to facilitate the loading of cars without heavy trucking expense.

Fruit Cake (Using Honey Instead of Sugar)

It is made as any fruit cake using raisins, figs (cut in pieces), nut meats, etc., the difference being that we use honey instead of sugar, and, instead of using white flour altogether, we use one-half whole wheat flour and one-half white flour.

William G. Pyne, Wis.

BOOKING ORDERS

for high-grade three-banded Italian bees and queens: 2-lb. package with select untested queen, $4.50; discount on quantity. Select untested, $1.00, $10.00 per dozen; select tested queen, $1.50. Inspector's certificate with each.

J. ALLEN, Catherine, Alabama

PORTER

BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers
If no dealer, write factory

R. & E. C. PORTER, Mfrs.

Lewistown, Ill., U. S. A.

Mention Am. Bee Journal when writing)

ITALIAN QUEENS AND BEES

Packages with untested queens: 2-lb., $4.25 each; 10 at $4; 25 or more at $3.75. 3-lb., $5.25 each; 10 at $5; 25 or more at $4.75. Package bees without queen $1.00 less than the above prices. Package bees shipped on pure sugar syrup. Queens shipped on pure sugar candy.

Queens—Untested, $1.00 each; 12 at 85c; 25 at 80c; 100 at 75c. Tested queens, 50c each extra. Apiaries state inspected. Health certificate with each shipment. Satisfaction guaranteed.

W. A. WHITMIRE, Milton, Fla.

Package Bees, Nuclei and Queens

April, May and June Delivery

Health certificate. All necessary papers with package bees to Canada. Prompt delivery. Pure Italian stock. 20% with order, balance before shipping date.

Two-pound pkg. with untested queen, $3.75; five pkgs., $3.60 each; ten, $3.50 each; fifteen to twenty-five, $3.40. Three-pound size, each, $1.00 more. Two-frame nuclei with untested queen, each, $4.00; five, $3.90; ten, $3.80; fifteen to twenty-five, $3.70 each. Three-frame size, each, $1.00 more. Queens, $1.00 each, or six for $5.00; twelve, $9.50; fifty, $35.00; one hundred, $65.00.

Write for price on large lots. Begin shipping April 1. Safe arrival guaranteed.

TAYLOR APIARIES, Luverne, Ala.

GEORGE H. REA, twenty-one years Beekeeping Specialist for the United States Bureau of Entomology, North Carolina, New York and Pennsylvania; State Apiary Inspector for Pennsylvania and Apiarist for The A. I. Root Co., is prepared to supply his friends with pure three-banded Italian bees. This stock is the result of thirty years of selection in large honey-producing apiaries. Only selected queens are sold. Untested, $1.00; doz., $11.00. Tested, $2.00. Write for circular about breeders and colonies.

ITALIAN BEES THAT PLEASE

Reacroft

REYNOLDSVILLE, PENNSYLVANIA

Bank reference, The Peoples National Bank, Reynoldsville

TENNESSEE-BRED QUEENS

Sixty-eight Years with Bees and Fifty-six Years a Queen Breeder. Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	$2 00	$ 8 50	$15 00	$1 50	$ 7 50	$13 50	$1 25	$ 6 50	$11 50
Select Untested	2 25	9 50	18 00	1 75	9 00	15 00	1 50	7 50	13 50
Tested	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	21 00

Select tested, for breeding, $7.50

The very best queen, tested for breeding, $15.00

JOHN M. DAVIS, Spring Hill, Tenn.

[*Money Saved*
Time Saved]

Bee Supplies

Root's Goods at factory prices with WEBER'S service. Send us a list of your wants and we will quote you prices that will save you money.

C. H. W. Weber & Company

2163-65-67 Central Avenue

CINCINNATI, OHIO

HIGH-GRADE

Three Banded Italian Queens

Our strain has given satisfaction to all who have used them
Here is our customers' opinion:

"We like your strain of bees very much and will need 100 queens before the season is over"—New York.

"The queens are certainly beautiful and are giving perfect satisfaction."—Indiana.

Prices as follows: 75c each; 12 to 24, 65c each; 25 or more, 60c each
Pure mating, safe arrival and satisfaction guaranteed

JNO. C. HOGG, APIARIST

ANDALUSIA, ALABAMA, U. S. A.

GOLDEN ITALIAN QUEENS

Only One Grade, Select. Safe Arrival and Satisfaction Guaranteed.
Untested $1.00; 6 for $5.00; 12 for $10.00

E. A. SIMMONS, GREENVILLE, ALABAMA

CANADIAN BEEKEEPERS

"Chrysler's Process Foundation"

Government tests prove to be the "Best by Test Kind." Made of pure Beeswax. Perfect refining and milling. Thirty-five years' experience. Satisfaction guaranteed.

Other supplies manufactured. Best goods at lowest prices
Send for Catalogue

W. A. CHRYSLER & SON, Chatham, Ont.

YANCEY HUSTLERS

A strain of Three-band Italians with a record for honey production in every section of the U. S. and Canada

Quick Service and Satisfaction Guaranteed

Package bees with select untested queens:

	1 to 9	10 to 24	25 to 49	50 or more
2-lb.	$3.75	$3.50	$3.30	$3.10
3-lb.	4.75	4.50	4.30	4.10

Twenty-five per cent overweight in every package; practically all young bees; no drones. Descriptive circular on request.

Caney Valley Apiaries, Bay City, Texas

New Catalog for Beekeepers Sent FREE

Here is a Catalog that contains genuinely helpful information for the beekeeper. Does not list "knick-knacks"—but only good supplies that will actually help you produce honey and wax at ***lowest cost.*** By reducing your production costs, you thus increase you profits

WRITE TODAY FOR CATALOG
and Other Helpful Information

Write to me today and tell me what your problems are. Let me offer you the help and advice of our 30 years' experience in the beekeeping business. I will send you a copy of our new Catalog, together with two pamphlets, "Marketing Honey and Beeswax" and "Efficient Production of Honey and Beeswax." These contain valuable and helpful information. Sent FREE, without obligation. Write today.

A. L. BOYDEN, Pres.

THE A. L. BOYDEN CO.

Dept. 126, Alhambra, California

San Francisco Office, 52 Main St.

PACKAGE BEES AND QUEENS

1500 strong healthy colonies to draw from.

Italian Queens $1.00 each
Packages $1.00 lb.

Discount on Quantity

R. E. LaBARRE, Box 1042, Tulare, Calif.

Every ounce of this re-processed Water

FORMALIN SOLUTION

measures up to a given standard of strength and purity

For sterilizing combs infected with

AMERICAN FOULBROOD

It is the Cheapest Dependable Disinfectant.

ST. LOUIS APIARY SUPPLY CO.,
Commercial Bldg., St. Louis, Mo., Agents

THE D. & B. CHEMICAL CO.
800 E. 37th St. Portland, Oregon

WHY EXPERIMENT

and take chances with just ordinary queens when the best cost so little. Our queens are well known for their hardiness, prolificness, gentleness, and honey-gathering qualities. Safe arrival and satisfaction guaranteed. Health certificate with each shipment.

One untested, 80c; twelve for $9.00. One select untested, $1.00; twelve for $10.00. Tested, $1.50; twelve for $15.00.

Write for descriptive circular and prices on quantities

J. M. CUTTS & SONS
R. No. 1, Montgomery, Ala.

MIDDLE TENNESSEE QUEENS

SIXTEEN YEARS EXPERIENCE WITH BEES

Eleven years a queen breeder
Three-banded Italians

	1	12	100
Untested	$1.00	$11.00	$ 80.00
Select Untested	1.25	14.00	105.00
Tested	1.75	18.50	145.00
Select Tested	2.00	22.00	170.00

Day old queens 50c each

We guarantee satisfaction and safe arrival in U. S. and Canada

MIDDLE TENNESSEE APIARIES
LEO C. PARKS, Manager
SPRING HILL, TENNESSEE

When Writing Advertisers Mention The American Bee Journal

NUSBAUM'S ALBINOS

Queens from the 400-lb. Strain

Prices—Untested, $2.50. Tested, $3.50
Write for special prices on large lots

STERLING NUSBAUM
Taneytown, Maryland

BRIGHT ITALIAN BEES and QUEENS

What is the value of Package Bees if headed with poor Queens?

LESS THAN NOTHING! WHY TAKE A CHANCE?

My queens are developed under most approved, modern methods, with the result that customers from 32 states praise gentleness, prolificness and honey production. Shipments made promptly over trunk lines from New Orleans. Health certificate furnished.

Two-pound package with select untested queen: 1, $4.00; 5, $3.50; 50, $3.25; 100 or over, $3.00. Extra bees, 75c per pound.

Golden queens, $1.00; four to nine, 90c; ten to twenty-four, 80c; over twenty-four, 75c each.

M. STEVENSON, Westwego, Louisiana

Canadian Beekeepers' Attention

QUALITY IN SUPPLIES

We specialize in Ruddy Manufacturing Co.'s Bee Ware. The material is specially selected lumber scientifically cured and air dried to ensure the least possible variation of shrinkage or expansion under our severe weather conditions. All work is properly spaced and jointed to give that uniformity, accuracy and smoothness of finish unobtainable with home-made or ordinary planing mill products.

Get Your Supplies Early

Langstroth Hives, Extracting and Comb Honey Supers, Honey Extractors, Feeders, Foundation (Airco and Dadant's Wired), Queen and Drone Traps, Smokers, Honey Knives, etc. Special Prices on Large Quantities.

Write for full particulars of Stock Handled.

STEELE, BRIGGS SEED CO., Limited
Regina, Sask. and Winnipeg, Man.

CAUCASIANS CARNIOLANS PACKAGE BEES

Beekeepers: Do you want thriftier, more hardy bees? Do you want bees that winter better, that are gentler and give larger average yields of honey per colony? If you do, then try our line of gray bees and queens.

Untested queens, $1.25 each; six, $7.00; twelve or more, $1.00 each.

Two-pound packages with queens, one to five, $4.00; five to nineteen, $3.50; twenty or more, $3.25 each. No disease and delivery guaranteed.

Write for circular which gives full particulars of our bees and queens.

W. A. HOLMBERG, Turlock, Calif.

THE HONEYBEE

Written originally by L. L. Langstroth, rewritten by Charles Dadant and C. P. Dadant, is now in its twenty-second edition. Successful beekeepers use this book as an aid in their daily problems. The teachings of Langstroth and the experiences of the Dadants compiled in this book make it a volume of constant reference.

Price $2.50

American Bee Journal
Hamilton, Illinois

QUEENS—REDUCED

75 CENTS AFTER THE FIRST OF JUNE

Requeen with these valuable Shaw Line-bred Queens. They are not only beautiful, but productive. It pays handsomely to requeen with the right stock. Give them a tryout. We must keep our force at work after the rush season.

SHAW & RAMSEY, Loreauville, La.

Morrison's Three Banded Italian Queens

If you want Italian queens with years of selection and breeding back of them for qualities such as gentleness, honey gathering, less inclined to swarm, and capping their honey white, requeen with **Morrison's Line Bred Stock.** We have the stock and know the business.

Prices are as follows: 1 (one) $1.00; 6 (six) $5.50; 12 (twelve) $10.00; 25 or more, 80c each. Tested, $1.50 each, in any number. Breeders, $5.00 and $7.50 each.

Safe arrival and perfect satisfaction guaranteed

GEO. MORRISON, P. O. Box 65, Mandale, Ohio

DADANT'S WIRED NON-SAG FOUNDATION

Dadant's Foundation

THE SAVING OF

TIME and MONEY

FOR

Minnesota and Wisconsin Beekeepers

TIME saved in short hauls. We like rush orders, as we buy in car lots and ship same day order is received.

MONEY saved by ordering Lewis and Dadant goods at factory prices from Winona, Graceville, or Brainerd, Minnesota.

Dadant's Wired Foundation and Lewis Slotted Bottombar Frames on hand at all times.

Standard Lumber Company
Winona-Graceville-Brainerd
MINNESOTA

Lewis Beeware

ACHORD QUEENS

VIGOROUS YOUNG ITALIANS, BRED FOR SERVICE

They are reared in strong colonies and mated from strong nuclei. We can fill your order promptly.

Select young laying queens now 75c each; five or more, 70c each; twenty or more, 65c each. Tested queens, $1.50 each

W. D. ACHORD, Fitzpatrick, Ala.

HIGH GRADE ITALIAN QUEENS

HEALTH - CERTIFIED
Three - Banded Only

Everyone of them carefully selected. Safe arrival and satisfaction guaranteed.
1, $1.00; 12, $10.00; 100, $75.00. Certificate of inspection with every shipment.

URIAH APIARIES, Box A, Uriah, Alabama, U. S. A.

GUS DITTMER COMPANY SPECIALTIES

WORKING YOUR WAX INTO FOUNDATION FOR YOU FOR CASH
AND DITTMER'S NON-SAG BROOD FOUNDATION

We are now able to furnish a Non-Sag Brood Foundation that will give absolute satisfaction. Our MR. E. H. HANSELMAN has for several years been testing and experimenting along this line, and the result has exceeded our most sanguine expectations. Bees take to it like ducks to water, in preference to other makes, in all cases where it was used side by side with other makes of foundation. NOW IS THE TIME to send us your wax to work for you for next season. Write us for samples and prices, and we will tell you more about it.

We can also furnish you THE BEST HIVES AND SECTIONS MADE IN WISCONSIN, at best prices, in any quantity. We furnish a full line of supplies. Write us for price list.

GUS DITTMER COMPANY, Augusta, Wis.

PURE ITALIAN QUEENS
—70c—

After July 1, the price of our high grade queens will be only 70 cents each, regardless of quantity. Why not replace those hybrid and old failing queens? It will increase the yield of your honey crop 50 per cent and better for 1929. Tests show this to be a fact. WHY LOSE WHEN YOU CAN WIN?

Prices on package bees same as before
Our Catalogue is FREE for the asking

VALLEY BEE & HONEY CO., P. O. Box 703, Weslaco, Texas

Ruddy's

CANADIAN MADE

3 PLY COMB FOUNDATION

"The Strength is in the Comb"

Trial package of ten sheets (nearly 1½ pounds) for one dollar postage paid to Canadian customers

Exclusive Canadian manufacturers and distributors

THE RUDDY MANUFACTURING CO., Ltd.

BRANTFORD, Ontario, Canada

VICTOR QUALITY QUEENS

QUEENS—THREE-BANDED ITALIAN—QUEENS

After June 15—Untested queens, one to fifty, 75c each. Over fifty, price on application. I thank you for your package business. What do you want next year?

W. O. VICTOR, Queen Specialist

UVALDE, TEXAS

PACKAGE BEES

HARDY, NORTHERN STRAIN

Quality—Service.
None better—Let's prove it.
Special Prices on Large Quantities

VAN'S HONEY FARMS

Hebron, Indiana

Bee Men that Sailed the Seven Seas

Not more than a dozen copies left. The Seventh Report of International Congress of Beekeepers

Quebec, September 1-4, 1924

Orders filled in rotation

English and French
Postpaid $2.25

American Bee Journal
Hamilton, Illinois

ITALIAN BEES AND QUEENS

2-Pound Package	$3.50
3-Pound Package	4.25

UNTESTED QUEENS

To July 1	
One	$1.00
Twelve	10.00
One hundred	75.00
After July 1	
One	$ .85
Twelve	8.50
One hundred	65.00

LOUISIANA SOUTHERN BEE FARM

BATON ROUGE, LA.

GRAY CAUCASIANS

All that wish to enter our $100 prize contest, for production of comb honey, with one colony of Caucasian bees, must file their entry on or before July 1, 1928.

Queens for June are:
One, $1.50; six, $8.00; twelve, $15.00

BOLLING BEE CO.

Bolling, Alabama

BETTER BRED PURE

ITALIAN QUEENS AND BEES

1 to 9	90c each
10 to 100	75c each

Select untested, 10c additional per queen. Tested, 50c additional per queen.
Two-pound package with CALVERT queen, $2.95. Three-pound package with CALVERT queen, $3.95.
Introductory offer: Five queens at regular price, one free
Write for prices after 15th
There has never been any disease known here. Satisfaction guaranteed.

CALVERT APIARIES
A. L. WEBB, Prop.
CALVERT, ALA.

Golden Northern Bred Queens

Write for Prices for Spring Delivery

HERMAN AHLERS, Astoria, Oregon

IOWA QUEENS

You need good Italian Queens, and that is the kind we raise

We guarantee pure mating, safe arrival and that you will like the queens.

Untested queens,	$1.00
Select untested	1.30
Tested,	1.60

ORIN STANLEY

Lamoni, Iowa

If you want

ITALIAN QUEENS

of highest quality

Write for our free book "About Bees"

JAY SMITH

Route 3, Vincennes, Indiana

OLD RELIABLE

Mondeng for Hives, Supers, Sections, Frames

and all other bee supplies at factory prices. Send in your list now for special quoting if you want to save money.

Charles Mondeng Company

159 Cedar Lake Road

Minneapolis, Minnesota

LEININGER'S STRAIN OF ITALIANS

BRED FOR BUSINESS

Beginning June 1, we will sell queens from this famous strain at the following prices. 1 to 5, $1.00 each; 6, $5.50; 12, $10.50; 100, $85.00. Tested, $1.50. Breeders, $10.00 each.

FRED LEININGER & SON, Delphos, Ohio

PACKAGE BEES FOR JUNE DELIVERY

One 2-pound package with queen	$ 3.00
One 3-pound package with queen	3.50
One 4-pound package with queen	4.50

Address to JOHN ST. ROMAIN, Marksville, La.

ITALIAN QUEENS as GOOD as the BEST

One, $1.00; six, $5.00; twelve, $9.00

Every queen absolutely guaranteed in every way. You are the judge

ROY S. WEAVER & BRO., Courtney, Texas

SMITH'S SUPERIOR THREE BANDED QUEENS

Cheap In Price But High In Quality

The best queens ten years of experience can produce. We ship only the BEST, as it means the success of your honey crop. We guarantee every queen we ship; she must be well shaped, thrifty, and of pretty color. We have never had any disease, although our bees are state inspected, and health certificate goes with each shipment. Order direct from this ad and we assure you that our QUEENS and SERVICE will be all you expect. Prices after June 10 follow; before June 10 they are 10c higher:

Select Untested—1-9, 65c; 10-24, 60c; 25 up, 55c each

N. B. SMITH & COMPANY

SUCCESSOR TO W. C. SMITH & CO.

CALHOUN, ALABAMA

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of **Sections** from the whitest selected Wisconsin basswood

We also manufacture hives, supers, frames and shipping cases

Write for our free illustrated catalog

Marshfield Manufacturing Company

Marshfield, Wisconsin

GET OUR PRICES

Before Buying Beekeepers' Supplies

For your convenience we have included a coupon with this ad. Use it or write us a letter.

Our Guarantee

All goods purchased may be returned if unsatisfactory and money cheerfully refunded. No questions asked.

Our Service

While we ship all over the country, we can give special service to those located in the East—New York, Pennsylvania, New England, and Atlantic Seaboard states.

W. T. FALCONER MFG. COMPANY

FALCONER, N. Y.

W. T. Falconer Mfg. Co., Falconer, N. Y.
Gentlemen:
Without obligation on my part, please quote prices. I have_____ swarms.
_____ Hives _____ Sections
_____ Supers _____ Br. Fdn.
_____ Frames _____ Super Fdn.
_____ Bodies _____
Name_____
Town_____ State_____
Address_____

Dadant's Plain Foundation

For the Man Who Wires His Own Frames

Dadant's Plain foundation is made only of the **purest beeswax;** refined without chamicals and retaining the sweet smell of the hive and honey that bees accept.

Comb foundation is made of sheets of wax pressed between metal mills, in exact reproduction of the base of bees' comb. The sheets are just right to fit the frames used in the hives.

There is absolutely no **substitute nor shoddy in it.** Each sheet is inspected and carefully wrapped to reach you in perfect condition, ready for use.

Dadant & Sons

WIRED — PLAIN — SURPLUS

Foundation Manufacturers

HAMILTON - ILLINOIS

GLASS AND TIN HONEY CONTAINERS

2½-lb. cans in cartons of 100	$4.00	car.
5-lb. pails in cartons of 50	3.50	"
10-lb. pails in cartons of 50	5.00	"
60-lb. tins, NEW, 2 tins per case	1.00	case
60-lb. tins, USED, 2 tins per case	.35	"
160-lb. kegs (the ideal container for both Buckwheat and Clover Honey)	1.20	each

GLASS JARS WITH GOLD LACQUERED CAPS

16-oz. Honey Capacity, 2 doz. per carton	$1.20	car.
3-lb. or Quart Capacity, 1 doz. per carton	.90	"

SPECIAL HAZEL-ATLAS TALL JARS

8-oz. Honey Capacity, 2 doz. per carton	$1.05	car.
16-oz. Honey Capacity, 2 doz. per carton	1.35	"
2-lb. Honey Capacity, 1 doz. per carton	.95	"

BEE SUPPLIES

COMB HONEY SUPERS—10-FRAME
No. 1, for 4¼x4¼x1⅞ sections, at $4.00 per 5 k. d.
No. 3, for 4x5x1⅞ sections, at $6.50 per 5 k. d.

HONEY

ALL GRADES — ANY QUANTITY

HOFFMAN & HAUCK, Inc. **Ozone Park, New York**

QUEENS

MORE QUEENS **50c each** BETTER QUEENS

IN QUANTITY

Finest Three-Banded Italians

Bred for business. Prolific, large, beautiful. They throw workers of a beautiful, uniform color, showing three bands of a pleasing yellow, but not inclined toward goldens.

Demand for our stock has increased each year beyond our expectations, but this year we believe we have made provision to supply both old and new customers. No order too large or too small.

Invest a small amount in good queens; it will come back several fold in increased production, and pleasure you will derive from their ownership. Many years' experience, selective breeding, and large scale production places us foremost among queen breeders.

			25 to 100
Untested	1 to 9	10 to 24	and up
Price to June 15	80c ea.	70c ea.	60c ea.
After June 15	60c ea.	55c ea.	50c ea.

Tested queens, $1.25 each

Safe arrival and complete satisfaction guaranteed

JENSEN'S APIARIES

Crawford, Miss.

Honey Wanted

EXTRACTED

Carload or less quantities, send samples and advise quantity you have and price.

COMB

Carload or crate lots. Must be sections sizes 4¼ x 4¼ x 1⅞. Mention grade and quantity.

Also Shallow Frame White Comb Honey

Hoffman & Hauck, Inc.

Ozone Park, New York

LEAHY'S **Bee Supplies** LEAHY'S

High Quality
Prompt Service
Satisfaction Guaranteed

Write For Our 1928 Catalog

LEAHY MANUFACTURING COMPANY

HIGGINSVILLE, MISSOURI

Dadant's New Open Mesh

EXCELSIOR BEE VEIL

Skirt is made of open mesh cloth which lets in all the air and breeze. Face of screen. Perfect vision—comfortable. Strong, khaki top with elastic cord. Holds its shape—long wearing.

Price $1.00—Ask Your Dealer

DADANT & SONS, Mfgrs., Hamilton, Ill.

FREE FREE FREE

BERRY'S RELIABLE THREE BANDED BEES

SPECIAL JUNE OFFER

One Package with Queen with each order of a dozen. Make your increase now.

Prices via Prepaid Transportation:	Each
1-lb. Pkgs. with queens of select quality,	$3.00
1½-lb. Pkgs. with queens of select quality,	3.50
2-lb. Pkgs. with queens of select quality,	4.50
2½-lb. Pkgs. with queens of select quality,	5.00
3-lb. Pkgs. with queens of select quality,	5.50
4-lb. Pkgs. with queens of select quality,	6.50

Lots of twelve packages, 25c each package less than the above prices. All packages full weight on arrival and the bees are young bees.

(Note: Customers from western Canada we refer to our agents at Winnipeg)

One Queen Free with each order of six

Select untested queens, 90c each; six,	$5.25
Tested selected queens, $1.75 each; six,	10.00

WRITE FOR PRICES ON LARGE LOTS

Remember we prepay the transportation, guarantee safe arrival and entire satisfaction in every way. We have no disease and a 1928 health certificate accompanies all orders.

Over thirty years of selective breeding gives us a strain of pure three-banded Italian bees unsurpassed for honey production, hardiness and disease resistance.

M. C. BERRY & COMPANY

Box 627 Montgomery, Ala., U. S. A.

NEBRASKA
IOWA
KANSAS
MINNESOTA
COLORADO
SOUTH DAKOTA
WYOMING

Beekeepers be sure and get our 1928 catalog. Early order discounts on your bee supply orders.

Leahy's Standard Bee Supplies
Dadant's Wired Foundation
Honey Containers

W. R. PERRY CO.

1209 Howard Street
OMAHA, NEBRASKA

WHY PAY MORE

FOR

BEE SUPPLIES

when you can get the highest quality with real service at these prices:

	8-fra.	10-fra.
5 one-story hives, metal covers	$12.00	$13.20
5 one-story hives, wood covers	9.90	10.75
5 bodies with frames	5.25	6.05
5 bodies empty	3.45	3.60
5 shallow extracting supers with frames	3.45	4.20
5 shallow supers 5 11-16" empty	2.20	2.40
5 section supers 4½" empty	2.00	2.10
5 section supers (4¼-1-⅞")	3.50	3.70
Hoffman frames, regular depth, per hundred		4.75
Shallow extracting frames 5⅜", per hundred		3.75

Orders shipped the same day they are received

A. H. Rusch & Son Co.

Reedsville, Wisconsin

HIGH-GRADE ITALIAN BEES

QUEENS THAT ARE A PLEASURE TO OWN

IMPORTED STOCK

Our package rush is about over and we are prepared to furnish large quantities of Quality Bred Queens. If interested in good queens, we will appreciate hearing from you. Let us know your wants for delivery now or later.

Complete Satisfaction Guaranteed

YORK BEE CO.,

H. F. YORK, Owner

JESUP, GEORGIA

What is the matter with your honey?

Brilliant in red, green and gold—Canco packages help your new and repeat business. Three sizes—2½ lb. cans, 5 and 10 lb. pails.

Canco honey containers are distributed by

Colorado Honey Producers Association, Denver, Colo.

Dadant & Sons, Hamilton, Ill.

Fargo Seed House, Fargo, N. D.

G. B. Lewis Company, Watertown, Wis.

10 Tivoli Street, Albany, N. Y.
1304 Main Street, Lynchburg, Va.
1921 E. 4th Street, Sioux City, Iowa
318 E. Broad Street, Texarkana, Ark.

W. R. Perry Company
Omaha, Nebraska

B. F. Smith, Jr., Fromberg, Mont.

Standard Lumber Co., Winona, Minn.

Superior Honey Company, Ogden, Utah

Canadian Canco honey containers are now available f.o.b. Brandon and Winnipeg. Apply to Hamilton for quotations.

NOTHING, you say, is the matter with your honey. Yet it doesn't sell as well as you would like it to.

Packages can help or hinder sales—regardless of the quality of the product; and you owe it to your honey to package it attractively.

Canco honey containers are designed to attract attention on the dealer's shelf. They have increased the sales of a great many apiarists.

Canco stock designs allow ample space for you to display your name—this brings repeat sales, for you have identified your brand.

The nearest Canco office or one of the distributors listed will be glad to send you prices and terms.

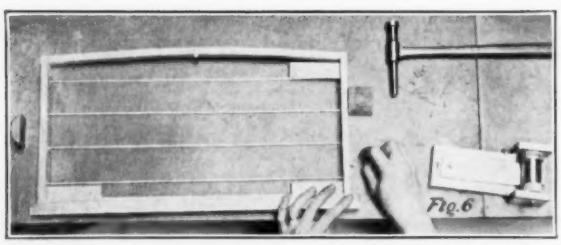
AMERICAN CAN COMPANY

CONTAINERS OF TIN PLATE - BLACK IRON - GALVANIZED IRON - FIBRE
METAL SIGNS AND CANCO DISPLAY FIXTURES

New York Chicago San Francisco Hamilton, Ont.

100 Per Hour

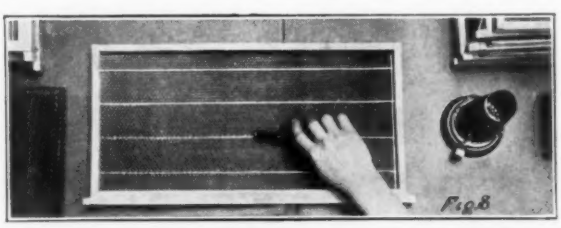
By Actual Test



Just slip the foundation into the grooved top bar of the frame.

The very best brood and extracting combs are obtained when the foundation is put in the wired frames just before using. This can be done very rapidly, as has been proven by actual test. One hundred per hour is easily possible with a little practice with our spur wire imbedder. Just slip the foundation in the groove in the top bar, then a few strokes with the wire imbedder and the job is done,—no nails to drive.

Frames can be wired at any leisure time and stored until needed. Anyone, even a boy or girl, with very little practice, can wire fifty frames per hour horizontally, with our fifty-cent outfit, and then you have the very best system of wiring known, for all purposes, especially for extracting or hauling to the outyards.



—and a few strokes, and the job is done

Our Inexpensive Outfit

An entirely satisfactory way to imbed wire horizontally in foundation is with a hand spur wire imbedder. Our inexpensive outfit contains one spur wire imbedder, wire enough for fifty frames, a special wire holder, one frame-wiring needle, and complete directions, for only fifty cents, postpaid.

(This special offer made from Medina, Ohio, only.
Not from any Root Distributor)

Write to

Root QUALITY BEE SUPPLIES

The A. I. Root Company

MEDINA, OHIO

Dept. A2

Root QUALITY BEE SUPPLIES